













# REPORT



OF THE

## SANITARY COMMISSIONER FOR BENGAL.

For the year 1870-71.

. WITH APPENDIX.

BY

DAVID B. SMITH, M.D.,

Sanitary Commissioner for Bengal.

Calcutta:

PRINTED AT THE BENGAL SECRETARIAT PRESS.

1872



# INDEX.

	PAGE.
1. Places visited during the year .. .. .	1
2. Total distance travelled ... .. .	1
3. Bill for the improvement of Puri-Juggernath ... .. .	1
4. Bengal drainage bill . ... .. .	1
5. Noxious trades ... .. .	1
6. Local reports for 1869-70 ... .. .	1
7. Charts of the fever-stricken districts ... .. .	1
8. New system of mortuary registration ... .. .	2
9. Observations regarding subsoil moisture ... .. .	2
10. Village conservancy rules ... .. .	2
11. The drainage of Calcutta ... .. .	2
12. Fairs and pilgrimages ... .. .	
13. Epidemics ... .. .	
14. The supply of medicines at cheap prices ... .. .	
15. Municipal receipts and expenditure ... .. .	
16. The number of district sanitary reports received ... .. .	6
17. The number of district sanitary reports which have not been received ... .. .	6
18. Regarding changes and sanitary improvements attempted or carried out during 1870 ... .. .	6
19. Cholera ... .. .	19
20. Small-pox ... .. .	28
21. Malarious fevers ... .. .	29
22. Other diseases ... .. .	31
23. Mortuary registration ... .. .	32
24. Meteorology ... .. .	36

## APPENDIX.

25. Annual mortuary forms ... .. .	1 to 15
------------------------------------	---------



# ANNUAL REPORT

## SANITARY COMMISSIONER FOR BENGAL,

For 1870-71.

*Places visited during the year.*—During the year 1870 I personally inspected and took notes of the sanitary condition of 479 places.

The total distance travelled during the year was 2,839 miles. Six months and two days were passed at the different places visited; the rest of the year was devoted to office work at the Presidency.

At the close of the year the Council of the Lieutenant-Governor of Bengal deemed it advisable to pass a Bill for the better sanitation of Puri and other towns of Orissa, and for the regulation of pilgrim lodging-houses there and on the main lines of road leading to it. This Bill received the assent of the Governor General in Council on the 28th March, and became law as Act No. IV of 1871.

A Bill to facilitate drainage in certain parts of Bengal was introduced into the Bengal Legislative Council, and having gone through the usual stages, received the assent of His Excellency the Governor General in Council on the 10th May 1871, and was passed into law as Act V of 1871.

### NOXIOUS TRADES.

It is reported from Singbhoom that an inhabitant of Chyebasa (a lohar by caste) was in the habit of carrying on a regular trade by obtaining and selling the bedding and clothes of the dead taken for burial or cremation. The clothes of persons dying of cholera were thus appropriated and disposed of or stored in the man's own house.

I have known this to be done in other districts by moordafurashes. Indeed, I have seen these men waiting to despoil the grave so soon as the mourners should leave it. It is beyond doubt that certain numbers of persons make a living in this manner. The fact has been brought to my notice more than once by those who knew it to be a regular trade. It is one which should be firmly opposed by district officers.

After the publication of the general sanitary report of Bengal for 1869-70, a summary of all the district sanitary reports (45 in number), received from Civil Surgeons, was submitted to the Government. This collection of selected extracts indicated the general sanitary requirements of each sudder station and district, chiefly with regard to drainage, water-supply, and local conservancy. Certain special investigations were also recorded.

A comprehensive chart of the fever tracts lying between the Hooghly and Damooda (displaying the varying rates of mortality,) was submitted and printed by orders of the Government. A map of the Burdwan and Hooghly districts, prepared by Dr. Thomson, was also submitted, shewing the villages which suffered most severely from fever during the years 1860—69, with estimated population and mortality.

A system of general mortuary registration has been established, and the results will be found in appendix C. These, as might be expected, are as yet undoubtedly very imperfect and faulty; but the object of the Government has been to let all the difficulties and errors become fully apparent, with a view to their being separately taken up and gradually rectified as much as possible. When the proposed census of 1872 has been taken, the value of the mortuary statistics will be much greater than at present.

Observations regarding subsoil moisture. Returns showing the varying level of subsoil moisture, in connection with Professor Max Pottenkofer's theories as to the origin and propagation of cholera, are now received regularly; the collection of these returns has been made over to this office. The requisite wells were constructed by means of prison labor, the apparatus being supplied by the Department of Public Works.

Necessary instructions as to modes of observation and record were issued by circular letter to Civil Surgeons. The results from 28 districts have been separately submitted to the Government. As yet they are of negative value, particularly as cholera has been prevailing but little since they were commenced. Defects in the system of observation are being gradually remedied; meanwhile the records continue to be received month by month.

Village conservancy rules. The village conservancy rules formerly drawn out in this office and published in the first general sanitary report have been translated into Bengali and circulated amongst the people.

The drainage of Calcutta. The Calcutta drainage scheme, and the present condition of the Salt Lake, were freely discussed in a separate pamphlet, which was duly submitted to the authorities.

Fairs and pilgrimages. The regulation of fairs and pilgrimages continues to engage careful attention. The results for the year under review have been very satisfactory.

Epidemics. The course and general history of epidemics are now observed with much more system and care than formerly.

The supply of medicines at cheap prices. In the fever-stricken districts some of the more useful medicines have been placed within reach of the poor at 10 per cent. above English cost prices.

Municipal receipts and expenditure. During the year under review inquiries were instituted by which the receipts and expenditure of all the municipalities throughout the Lower Provinces might be contrasted with special reference to the strength and cost of the different conservancy establishments. The following table furnishes the information thus received. It will be seen that great discrepancies occur under the different headings, and with reference to the different districts. More uniformity in expenditure ought to be aimed at in the future. As time goes on we shall be able to lay down standards which ought, as far as possible, to be adhered to in all stations and districts. Heretofore there seem to have been no guiding rules,—the proportionate expenditure for the same objects being altogether different in different places, as will be seen by the following.

STÄTEMENT M



## M.—Statement showing Municipal receipts and

No.	Names of stations.	What conservancy Act is in force?	When was it introduced?	How many houses are within the boundaries of the town?	What is the estimated population?	How many mehters, carts, &c., make up the conservancy establishment?
1	Bhaugulpore	Act III (B.C.) of 1864	In October 1864	12,500	66,000	8 carts, 21 latrine mehters, 24 sweepers,
2	Moughlyr	Ditto	November 1864	9,234	53,700	1 peon, 1 herdman, 14 sweepers, 3 female sweepers, 4 bullock-feeders, &c.
3	Jamulpore	Act XXVI of 1850	In 1864	1,810	10,000	20 bullocks, 38 mehters, 1 buldar, 1 dome,
4	Purneah	Act III of 1864	November 1864	3,230 enc., or 7,572 houses.	11,108	5 mehters and 2 carts
5	Rajmohal	None	None	Not known	8,885	None
6	Deoghur	None	None	About 1,000	175,000	None
7	Patna	Act III and the Bye-laws.	In 1865	35,860		1 sub-overseer, 2 jemadars, 10 peons, 53 mehters, and 32 carts.
8	Gya	Ditto	1865 and Bye-laws in 1866	13,129	65,645	1 burkundaw, 22 domes, 13 cartmen, 26 bullocks, and 15 carts.
9	Chunparun	Act VI of 1868 I.P.C.	April 1869	700	68,313	2 mehters, 1 cart
10	Saru	Act III of 1864 and Bye-laws.	In May 1865	9,549	45,069	2 overseers, 12 mehters, 8 cartmen, 8 carts, 15 bulls, 1 buld-keeper.
11	Shahabad	Ditto	April 1865	6,004	23,934	1 overseer, 1 jemadar, 10 sweepers, 3 cartmen, 4 carts, 4 bullocks.
12	Tirhoot	Ditto	1st Jan. 1865	4,293	21,542	30 mehters, 22 carts, 24 bullocks.
13	Rajshahye	Act VI of 1868, and sec. 34 of Act V of 1861.	1st April 1869	4,224	15,497	6 mehters, 4 coolies, 2 carts
14	Bograh	Act VI of 1868	9th March 1869	1,231	4,642	2 mehters, 1 cart, and 1 peon
15	Dumapore	Ditto	April 1869	3,100	15,500	4 mehters, 1 cart, 32 coolies, 1 dafadar, 1 darowah.
16	Maldah	Ditto	In Dec. 1868	1,462	9,235	Only 5 mehters, no carts
17	Moorshedabad	Ditto	On 1st April 1868	7,382	29,324	53 mehters, 10 carts
18	Pabnah	Ditto	From April 1869	2,000	9,600	2 mehters and 1 cart
19	Rumapore	Ditto	1st April 1869	8,036	10,842	2 mehters and 2 carts
20	Burdwan	Act III of 1864	3rd April 1866	16,000	47,000	3 sub-overseers, 9 chuprassoes, 70 mehters, and 20 carts
21	Bancoorah	Act XX of 1856	In 1867	1,928	4,338	8 mehters, 3 carts, and 8 bullocks
22	Raneimgo	Ditto	In April 1869	1,005	7,035	8 mehters, 1 sirdar, and 2 carts
23	Beerbhoot	Act VI of 1868	1st July 1869	1,941	8,532	5 sweepers, 2 carts, 1 peon, 1 overseer, and 1 lamp-lighter.
24	Saranpore	Act III of 1864	In May 1865	7,717	23,963	9 mehters, 8 carts
25	Hooghly	Ditto	In April 1865	8,972	28,000	11 carts, 15 bullocks, 1 overseer, 3 ameens (sub-overseers), 35 dhankura (coolies), 10 cart-drivers, 3 mehters, 5 moordafushes.
26	Midnapore	Ditto	1st May 1865	6,700	27,700	34 mehters, 17 carts
27	Nuddea	Ditto	In 1865	9,000	40,000	2 ameens (overseers), 20 coolies, 1 moordafurash, 6 carts, and 6 sweepers.
28	Jessore	Ditto	August 1865	2,298	8,776	12 mehters, 4 cart-drivers, 1 keeper of bullocks.
29	24-Pergunnahs	Ditto	August 1864	45,358	2,500,000	100 carts, 100 coolies, 16 domes, 12 sweepers.
30	Bhowanipore	Ditto	Ditto	45,358	5,000,000	100 carts, 100 coolies, 16 domes, and 12 sweepers.
31	Dacca	Ditto	Ditto	15,071	52,600	10 overseers, 50 mehters, 4 domes, 32 carts, 53 bullocks, and 8 wheelbarrowers.
32	Backergunge	Act VI of 1868	1st April 1869-70	1,795	8,975	6 mehters, 2 carts, 4 bullocks, and watering-cart, and gurrywan.
33	Furreedpore	Ditto	Ditto	1,754	8,776	1 mehter and 1 cart
34	Myensing	Ditto	Ditto	1,219	12,190	3 carts, no mehters
35	Sylhet	Ditto	Ditto	2,707	16,000	15 prisoners are allowed only
36	Chittagong	Act III (B.C.) of 1864	1st Aug. 1864	4,307	16,518	4 mehters, 2 carts, and 2 syces
37	Nonkhally	Act VI (B.C.) of 1868	In April 1869	1,023	3,841	2 mehters, 2 coolies, and 1 cart
38	Tipperah	Act III (B.C.) of 1864	30th Nov. 1864	2,724	10,619	7 mehters, 7 carts and 20 drain mules.
39	Cuttack	Act VI (B.C.) of 1868	1st April 1869	11,314	44,436	4 carts, 8 bullocks, 12 mehters
40	Kendraparrah	Ditto	Ditto	2,620	11,821	None
41	Jajipore	Ditto	Ditto	2,169	9,180	None
42	Balsore	Ditto	Ditto	3,247	14,000	7 mehters, 3 carts, 6 bullocks
43	Pooroo	Act XX (B.C.) of 1856	March 1868	6,654	30,370	7 mehters, 7 carts
44	Hazarebaugh	Act VI (B.C.) of 1868	1st April 1869	2,333	12,000	11 mehters, 1 jemadar, 2 carts, 2 cartmen, and 6 bullocks.
45	Maunbhoom	Ditto	April 1869	1,448	7,240	4 carts, 4 sweepers
46	Slugbhoom	Sec. 34, Act V of 1861.	15th June 1870	937	3,473	2 carts and 2 mehters
47	Durrung (Assam)	None	None	347	2,312	None
48	Nowgong	None	None	1,516	3,351	None as yet
49	Seesauror	None	Never	770	8,600	1 mehter and 3 carts
50	Kamroop	Act III (B.C.) of 1864	1st April 1865	6,161	9,230	3 mehters, 5 bullock carts
51	Lukhimpore	Act V of 1861	1st Nov. 1862	1,000	5,000	None
52	Khasi and Jynteah Hills	None	Never	Not known	8,545	None
53	Gowalparah	None	None	1,946	6,803	None
54	Garrow Hills	None	None	None	About 300	None
55	Darjeeling	Act III (B.C.) of 1864	6th April 1864	147	22,697	10 mehters, 5 carts with drivers, 6 coolies.

expenditure in the districts of the Lower Provinces.

8	9						10		11
What were the total receipts for 1899-70*	What was the total expenditure under the heads						For the current year, what does the budget show as regards probable receipts and expenditure?		REMARKS.
	Police.	Conservancy.	Roads.	Collecting establishment.	Contingencies.	Receipts.	Expenditure.		
Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.		
31,476 5 10	8,266 7 7	7,614 7 8	9,318 10 0	1,423 1 0	1,172 8 1	40,000 0 0	38,060 0 0		
35,109 1 2	9,350 0 10	1,277 3 8	11,121 5 11	1,380 0 0	8,709 11 9	47,827 0 0	51,167 0 0		
13,567 12 6	2,400 0 0	2,202 0 0	1,310 0 0	216 0 0	246 3 1	16,774 12 2	14,817 9 1		
24,372 12 0	6,556 0 0	722 4 3	10,173 12 3	401 15 3	505 9 9	21,770 0 0	18,440 0 0		
470 0 0	None	None	None	None	None	600 0 0	None		
89,061 14 5	23,067 4 14	6,181 9 9	25,089 12 6	3,013 7 0	11,537 8 72	65,700 0 0	81,700 0 0		
25,650 8 2	15,206 11 3	2,529 2 4	3,415 5 6	2,135 9 5	476 1 6	26,500 0 0	29,789 0 0		
8,793 9 9	2,631 0 0	176 0 0	5,29 0 0	860 0 0	51 0 0	12,842 0 0	6,688 0 0		
5,552 4 1	7,956 3 8	3,167 14 9	12,664 10 2	9 5 0	5,963 6 9	25,512 8 5	25,512 8 5		
16,763 13 6	5,556 15 0	2,034 7 2	1,375 8 6	1,099 11 4	50 2 0	14,708 0 0	14,570 0 0		
21,183 12 6	6,387 0 0	1,639 9 10	11,608 8 0	508 15 1	None	23,150 0 0	29,381 7 6		
8,843 2 0	3,726 11 2	187 4 0	6,068 10 0	959 5 0	55 13 0	10,504 0 0	10,376 9 0		
2,516 12 0	1,076 0 0	226 15 0	530 0 0	184 0 0	126 13 9	2,853 0 0	2,853 0 0		
7,012 0 0	2,883 0 0	2,612 0 0	None	550+138	80 0 0	7,975 0 0	7,975 0 0		
8,324 0 0	2,113 0 0	300 0 0	None	300 0 0	126 0 0	4,000 0 0	3,160 0 0	Donation to charitable dispensary, Rs 180-0-0	
18,175 8 0	2,200 0 0	4,600 0 0	1,200 0 0	1,110 0 0	120 0 0	1,374 12 0	1,373 8 0		
7,690 0 0	2,832 2 9	167 1 3	2,025 9 1	481 0 0	380 5 2	8,231 0 0	8,231 0 0		
6,621 3 0	2,808 15 6	1,119 10 7	1,266 6 3	293 15 0	6,300 0 0	6,300 0 0	6,300 0 0		
26,514 6 4	12,581 9 10	7,005 12 3	13,257 12 9	1,670 0 0	16,495 11 8	55,050 0 0	55,050 0 0		
4,191 7 9	5,111 3 1	432 0 0	None	420 0 0	183 3 0	5,000 0 0	1,961 0 0		
9,165 5 2	3,760 2 0	870 11 9	2,511 1 0	789 0 0	8,690 10 6	8,690 10 6	None		
4,155 13 0	1,486 9 1	688 6 2	62 15 0	664 11 9	17 11 0	4,852 0 0	3,012 0 0		
37,114 0 0	9,438 7 1	6,193 5 0	4,582 8 0	1,538 8 3	257 10 1	40,158 0 0	30,412 0 0	Superintendence, Rs 720-13-0.	
49,987 7 1	11,137 15 8	5,280 0 6	13,472 13 9	2,116 1 0	5,639 10 8	48,725 0 0	48,239 5 0		
12,365 0 0	5,128 0 0	2,201 0 9	2,473 0 0	1,505 0 0	1,801 0 0	13,900 0 0	14,410 0 0		
22,173 0 0	5,713 0 0	982 0 0	4,023 0 0	1,113 0 0	3,274 0 0	19,610 0 0	22,736 0 0		
13,180 8 8	3,615 11 0	1,179 7 6	5,130 11 7	840 0 0	383 8 0	16,102 0 0	15,262 0 0		
3,61,266 11 2	93,503 6 0	39,348 1 4	91,952 1 0	21,544 1 6	3,100 1 3	3,60,500 0 0	3,10,205 3 11		
3,61,296 11 2	93,503 6 0	39,348 1 4	91,952 1 0	21,544 1 6	3,100 1 3	3,60,500 0 0	None		
18,921 14 4	16,347 15 0	6,531 7 6	12,686 15 6	4,477 3 6	536 12 0	56,236 0 0	54,752 0 0		
12,987 8 7	1,082 14 7	1,263 1 7	3,093 9 4	300 0 0	268 13 6	None	7,921 4 0	Rs 146-5-0 for public works.	
2,337 3 9	1,303 6 6	211 16 0	1,212 8 3	220 0 0	12 5 0	2,560 0 0	2,560 0 0		
5,000 0 0	1,524 0 0	780 0 0	1,500 0 0	320 0 0	76 0 0	5,000 0 0	5,000 0 0		
9,634 7 9	2,75 15 6	972 11 11	None	828 10 8	18 8 0	7,050 0 0	7,048 0 0	Cattle pound, Rs 187-5-6.	
17,659 3 4	6,805 1 8	2,210 11 3	3,573 15 6	776 1 11	7,727 13 6	21,540 4 5	22,771 0 0	Balance on acc and previous year Rs 8,212-1-8.	
1,965 3 6	904 2 0	159 3 6	411 4 0	315 0 0	88 15 3	2,202 0 0	2,202 0 0		
9,430 8 0	2,370 1 9	2,688 11 0	924 12 0	102 0 0	1,554 13 6	9,191 0 10	9,191 0 10	Rs 1,400-1-6 office establishment.	
9,832 3 0	4,975 1 0	1,358 15 2	640 0 1	878 0 0	363 4 0	20,000 0 0	20,000 0 0		
2,151 1 9	461 5 0	33 13 9	812 14 10	149 13 9	158 11 9	1,728 0 0	1,728 0 0		
2,028 15 6	404 15 0	None	200 0 0	228 12 0	51 8 3	3,716 0 0	3,716 0 0		
5,179 10 0	1,970 7 1	507 5 0	1,139 10 10	824 13 11	360 11 3	5,000 0 0	5,000 0 0		
8,208 4 0	6,061 0 0	672 0 0	422 0 0	1,987 11 10	862 10 10	15,000 0 0	13,654 0 0		
4,332 1 0	1,260 0 0	564 15 6	709 6 3	312 2 4	23 12 5	4,316 0 0	1,380 0 0		
2,217 15 3	864 0 0	522 0 0	None	210 0 0	31 7 0	21,000 0 0	2,710 0 0		
808 0 0	232 8 0	78 0 0	500 0 0	55 0 0	2 1 3	950 0 0	860 0 0	*Does not include constabulary police.	
None	None	None	None	None	None	4,625 0 0	None	†For town improvement fund	
12,115 12 5	None	None	None	227 9 0	None	1,400 0 0	263 0 0	Town improvement fund.	
28,217 0 3	2,749 12 11	1,972 0 9	9,314 3 8	308 0 0	22 0 0	10,310 0 0	19,310 0 0		
3,652 2 5	None	1,251 9 10	1,264 3 2	454 0 0	969 6 0	4,179 0 0	4,179 0 0		
None	None	None	None	None	None	None	None		
21,145 16 5	7,020 0 0	10,590 0 0	10,000 0 0	25,113 0 0	126,113 0 0	20,103 0 0	80,081 0 0	‡Includes Railway and drains, Rs 10,080, dak bungalow establishment, Rs 1,559, buildings, Rs 6,120, lock-hospital, Rs. 1, charitable hospital and donations, Rs. 921, Punnabareedak bungalow, Rs. 2,630, waterworks, Rs. 142, extra conservancy, Rs. 670, refunds, Rs. 82.	

*The number of district sanitary reports received :—*

CENTRAL ...	1. Howrah.	NORTHERN...	16. Rajshahye.	NORTH- WESTERN.	32. Bhaugulpore.
	2. Serampore.		17. Bograh.		33. Gya.
	3. Hooghly.		18. Maldah.		34. Arrah (Shahabad).
	4. Kishnagur.		19. Rungpore.		35. Sarun (Chuprah).
	5. Jessore.		20. Julpigoree.		36. Tirhoot.
	6. Berhampore.		21. Darjeeling.		37. Chumpranu.
EASTERN AND SOUTH- EASTERN.	7. Pubna.	WESTERN ...	22. Purneah.	SOUTH- WESTERN (ORISSA).	38. Midnapore.
	8. Furreedpore.		23. Burdwan.		39. Balasore.
	9. Backergunge.		24. Bancoorah.		40. Cuttack.
	10. Dacca.		25. Beerbhoom.		41. Puri.
	11. Mymensingh.		26. Rajmehal.		42. Gawalpurrah.
	12. Cachar.		27. Deoghur.	NORTH- EASTERN (ASSAM).	43. Kamroop.
	13. Tipperah.		28. Hazareebaugh.		44. Nowgong.
	14. Nonkhalley.		29. Ranchee.		45. Durrung.
	15. Chittagong.		30. Maunbhoom.		46. Seesaugor.
			31. Singbhoom.		47. Debrooghur.

*The reports which have not been received are the following :—*

1. Patna.		5. Shillong.
2. Dinagepore.		6. Monghyr.
3. 24-Pergunnahs.		7. Kooshtea.
4. Sylhet.		

The following statements contain, in a condensed form, the substance of all that has been

Regarding changes and sanitary improvements attempted or carried out in different parts of the country during the year 1870.

reported by Civil Surgeons on the subject of sanitary improvements attempted or carried out at the different stations during the year under consideration. They also convey reports on the general health of the population for the same period.

**HOWRAH.**—The conservancy arrangements of the station are being improved; they are, however, still very far from perfect. One public latrine has been constructed during the year, but four or five more are required. Within the municipality there are now in all thirteen latrines, of which ten have been built by private individuals. The total receipts from all these establishments amount to Rs. 280. A scheme for providing sufficient accommodation in this respect for the entire community residing in the most populous parts of the town has recently been laid before the municipal commissioners and approved. It entails an outlay of about Rs. 16,000. As soon as the scheme is carried out, the provisions of bye-law 33 will be strictly enforced within the portion of the municipality referred to. Provision will also be made in the budget of the ensuing year for extending the scheme to outlying places.

Building of the market sheds was commenced in the year 1866 and completed in June 1869. The site covers over 37 beegahs. It was acquired by Government in February 1864, at a cost of Rs. 6,253-1-10, including interest, debitable to the 1 per cent. income tax fund, and made over to the municipality in 1865. The cost of building the market sheds was defrayed from municipal funds; it amounted to Rs. 5,401-9-4.

A scheme for a system of open drains throughout a large portion of the town, prepared by Mr. Denham, C.E., has been submitted for the sanction of Government. There are now six burning ghauts on the banks of the river Hooghly, distant from each other from  $1\frac{1}{2}$  to  $2\frac{1}{2}$  miles. A cinerator was erected at the Ramkristopore ghaut; but its use, for the burning of the dead, proved very unpopular with the Natives. Religious scruples were advanced, and the precepts of the Shastras adduced, against this innovation. Whether such objections were altogether genuine or not, the compulsory use of the cinerator was not enforced. A space at the ghaut has, however, been enclosed by a high wall, and the public are required to burn their dead within this enclosure, and to carry out complete cremation, as required by bye-law 53. Thus, the revolting sights that were formerly common at this ghaut have now entirely disappeared. The shutting off of other burning grounds by high walls is now under consideration. Improvements have been effected in connection with the slaughtering of cattle. There is now only one slaughter-house within municipal boundaries. This is connected with the municipal market. The place is cleaned twice daily by the municipal establishment, the offal being removed to the Sulkea burial ground, where it is buried in trenches. The few tanks which are under the municipality are set aside for drinking purposes only. No persons are allowed to wash or bathe in these. Any one who persists in doing so is prosecuted in the Magistrate's Court. The municipality does not interfere with private tanks unless they are in a filthy state, when notices are issued, under section 72 of Act III of 1864, to have them cleaned. Should such an injunction not be acted up to, the objectionable tank is cleaned by the municipality and the cost realized from the owner by law. Jungle growing on private property is cleared under section 73 of the Municipal Act. During the

year, 2,555 persons are reported to have been successfully vaccinated by the municipal vaccinator. Preparations are now being made for the establishment of a lock hospital at Howrah. On the whole, the people of the station and district have enjoyed unusually good health during the past year. In one or two places remittent fever threatened to prevail during the cold months; this did not, however, assume the proportion of an epidemic, and in a few weeks it wholly disappeared. No epidemic cholera prevailed. Nine cases were reported in December throughout the district, but these were sporadic cases. The prisoners in the jail were remarkably healthy. The statistics of the Howrah hospital are here worthy of note. Of 4,149 European out-patients, 3 are known to have died. 7,010 Native out-patients obtained relief, 2 deaths being reported. Of the in-door patients, 718 were Europeans with 33 deaths, and 539 Natives with 60 deaths. Thus, the total number of treated was 12,416 with 98 deaths. Neither floods, nor cyclones, nor draught, occurred during the year.

The crops were good, and the yield proved abundant. The price of rice was consequently low.

SERAMPORE.—During the year under report much has been done to improve the sanitation of the seven square miles of densely populated locality under the jurisdiction of the municipality of Serampore. Within this area there are nearly 8,000 houses, and the estimated population is 24,000 souls. The vice-chairman of the municipality took much interest in the improvement of the place. A better system of conservancy was introduced. The night-soil removed from the different houses was buried in a field set apart for that purpose; rubbish was systematically collected and carted away; rank weeds and underwood were cleared, drains cleansed, and roads repaired and watered; many holes and stagnant pools were filled up, a few tanks were cleaned and deepened, and several old ruins removed. The great sanitary defect of the station consists in the large number of ruined houses, which intercept circulation of air and afford convenient spots for the commission of nuisances. The vast number of stagnant pools is also a great evil. Stringent bye-laws are enforced for the prevention of their increasing in number, yet it is a difficult matter to prevent the Natives digging pits when and where they require earth. Certain places should be set aside whence earth might be obtained for private purposes, and in this way large tanks would in time be dug. With the continuance of municipal energy at Serampore, the place is likely to benefit greatly. It has already been considerably improved. The Civil Surgeon, Dr. Barker, suggests that the municipal commissioners be empowered by legislative enactment to remove or repair, at the expense of the owner, any house in a ruined or dilapidated state that has been permitted to fall into decay for more than six months. I think some such rule as this ought to be sanctioned by the Government, inasmuch as a great part of the station is at present in a most objectionable condition, from the number of large useless ruins and neglected compounds which characterize the place. As the law now stands, the commissioners cannot remove a house unless it actually obstructs a highway or is dangerous to persons. A project for draining Chutra has engaged the attention of the commissioners. It is to be hoped that this will ere long be carried out, as it is likely very materially to improve the general health of the inhabitants. As regards the villages in the interior of this subdivision, little has yet been done to lessen the ravages of malarious disease besides affording relief to the sick.

HOOGHLY.—Dr. Thompson reports that no epidemic of fever prevailed during the year under review, which has been far more healthy than usual. The number of new cases of fever was comparatively small, and those who suffered most were the subjects of chronic disease of former years. An outbreak of fever was reported in July last, in the subdivision of Jehanabad. The smallest number of deaths in the district occurred within the Hooghly municipality, whilst the largest number was reported from the Jehanabad sub-division. In the former case, from fever, cholera, small-pox, and bowel complaints, the mortality amounted to 176; in the latter it was 1,190. The conservancy of the towns of Chinsurah and Hooghly is carefully attended to. The drains for carrying out rain water have been widened and improved. The sanitary condition of Dhurumpore, a proverbially unhealthy place, has been much improved. At Chinsurah the outchery tank, which affords wholesome drinking water to a large portion of the community, has been re-dug, thoroughly cleansed, and filled with clean water from the river. The old Mahomedan cemetery, having been entirely filled with graves, was closed at Dr. Thompson's recommendation: another piece of ground, on an elevated spot, has been selected at a suitable distance. Dr. Thompson still strongly urges his recommendation of last year for the closing of all cemeteries situated in densely populated localities. The night-soil from the public latrines is daily removed and buried in trenches.

KISHNAGUR.—Some new tanks have been dug, others cleaned out and enlarged. Many large villages have still a very imperfect water-supply. The station and town of Kishnagur were healthy throughout the year, almost entirely escaping cholera, which for many months

\*was prevalent over the greater part of the district. In the jail the ratio per cent. of deaths to strength was 2·13, and of deaths to sick, 3·05. There were 257 admissions into hospital, or a ratio of 68·71 per cent. to strength.

**JESSORE.**—In this district the year under report was one of unusual salubrity. The only exception to this was a small tract of country in the Khoolnah sub-division. In the town of Jessore some improvements have occurred in the way of drainage. Tiled drains have been constructed by the municipality along some of the roads, and also around the fish market; public latrines have been started, in which the dry-earth system has been introduced. The percentage of deaths to strength in the jail was 1·7. It is to be observed that the river Bhoyrub, which for years has been a cause of insanitation at Jessore, was, during this year of exceptional salubrity, much higher than usual; still the condition of the river is very unsatisfactory, and I had occasion recently to report to the Government on the subject. As soon as any funds can be raised for the purpose, the condition of the river ought to be improved, for two or three miles at least above and below the station. I regard this as a work of great importance.

**BERHAMPORE.**—Dr. White\* reports that the municipality works well, and it endeavours to keep the place clean; but he very justly complains of the mistake which is committed in allowing filth to be thrown into the Kulkapore jheel, and also too close to the town. I hope that Dr. White's suggestions on this point may be strictly acted up to. The depositing of filth and refuse in the jheel is very objectionable and dangerous to public health. A plan for draining the station of Berhampore into the Gograh nullah, which is about six miles off, has been in contemplation for some time. I regret to learn that this work is still in abeyance; it would not only greatly benefit the station and town of Berhampore, but also the neighbourhood of the Moydapore Asylum and Jail, both of which places are converted into a complete swamp when the country is flooded.

**BACKERGUNGE, (Sudder Station Burrisaul.)**—Some tanks have been set apart for drinking purposes, but the rule prohibiting bathing and washing of clothes is frequently infringed. The jungle about the town is frequently cut, and the *khats* have been cleaned. The drainage of the town is still very bad, and it is reported that each individual appears to have made his own portion of the drains, regardless of levels. Dr. C. Bensley recommends the adoption throughout the town of surface saucer-shaped drains. Two public latrines have been opened out near the courts, and the dry-earth system adopted; other sites are also being taken up for more public latrines. Dr. Bensley reports that the *chur* is rapidly forming in front of the station, and he believes that this will be attended with the most dire consequences to the place. He calls serious attention to the point, and recommends that the Government should either claim or buy up this extensive *chur*. Situated as Burrisaul is, surrounded by dense jungle, its only safeguard has hitherto been its very extensive and open river frontage. Dr. Bensley seems to believe that if the new *chur* is not appropriated by Government, the present station may have to be abandoned, as happened in the case of the town of Backergunge, which was formerly the civil station of the district. This appears to be a matter worthy of the immediate attention of Government.

**FURRIEDPORE.**—The general condition of the town, from a sanitary point of view, is said to be gradually improving. Dr. Bholanauth Bose reports that the sudder station is certainly much cleaner, more airy, and better ordered in every way than it was this time last year, although there is yet ample room for improvement. The roads and drains have on the whole been kept in better order than previously, and the water-supply has been more carefully looked after. Act VI of 1868 has been introduced, but it has been worked with difficulty, chiefly in consequence of insufficient municipal funds. A gang of five convicts from the jail was daily engaged by the town committee to keep down jungle and to look after open drains. A large tank has been recently excavated in the new jail garden. Dr. Bose objects to the extension of field cultivation within the limits of the town.

**DACCA.**—Scarcely any actual progress in sanitation has as yet been carried out at Dacca, except that in furtherance of the wishes of Government a scheme for the sanitary improvement of the town, as suggested by the Magistrate, has been drawn out and submitted to Government for approval and sanction. It was at first proposed to raise a loan of Rs. 1,50,000 for (1) the introduction and working of a conservancy system, (2) the ventilation of the town by cutting open roads through its dense and dirty parts, and (3) for the purchase of land along the sides of the Dholai *khal* to embank it and fringe it by a bazar. The general cleanliness of the street was improved; they are now swept and watered by means of prison labour. The silting up of the Boorigunga continues; the depth of water in front of the barracks is only five feet at its highest side. *Churs* are so rapidly forming that steamers will probably ere long be unable to go so far as Dacca; this subject has lately engaged the attention of the Public Works Department.

\* It is much to be regretted that since the date of the report here referred to, Dr. White himself fell a victim to cholera.

**MYMENSING.**—Although the year 1870 was generally speaking a healthy one, and although no epidemics prevailed, the sanitary condition of the civil station of Mymensing does not seem to have been improved. The bed of the river near the station has to a great degree dried up within the last ten years. An increasing population has led to the crowded state of the bazar, and the drainage is defective. The roads are attended to by the municipality, but clearing drains, cutting jungle, removing filth, and all conservancy arrangements, are allowed to remain as they were in former years. The Civil Surgeon writes,—“It is very easy to see defects and to recommend their removal, but there is no money to pay the expenses.”

**CACHAR.**—Both the district and the station have greatly improved. Good roads are being made, drains are being constructed in different parts of the station, many of the stagnant pools are being filled up, jungle is being burnt, and the houses of the Moochees have been removed to a great distance. The Civil Surgeon suggests the formation of a municipal body, under whose auspices many sanitary measures might be carried out. He also suggests the establishment of public latrines, the formation of pucca wells and tanks, the erection of houses raised a few feet from the ground, and the removal of the distillery and the slaughter-houses from the station. At present there are some make-shift latrines within the cantonments, but they are scarcely resorted to. The drainage of the swamps within station limits is necessary. To carry out sanitary measures a certain sum of money has been sanctioned by Government, and some thing may now be done. The only disease peculiar to the locality is a form of skin disease common amongst those of the hill tribes whose systems have been contaminated with the syphilis, poison; psoriasis is also common amongst them. The hillmen do not seem to stand this climate well.

**TIPPERAH, (Sudder Station Comillah.)**—The present sanitary condition of Comillah is said to contrast favorably with the past. The municipal commissioners are most anxious to remedy existing defects, and the Magistrate, as chairman of the municipality, takes an active interest in such matters. The health of the district has on the whole been satisfactory, no epidemics of any kind having prevailed during the year.

**NOAKHALLY.**—Of the improvements carried out in this station during the year, may be mentioned the cleaning out of the tank to the south-west of the station, the water of which is made use of for drinking purposes by most of the residents. A cart for removing sweepings from the streets has now for the first time been introduced. The general system of conservancy still stands in much need of improvement, and the drainage in many places is very defective. No epidemic occurred in the station during the past year.

**PURNA.**—The sudder and sub-divisional stations have been taken in hand by the town committees, and the drains and roads improved by deepening of the former where necessary, and removing jungle from the latter. This work is still in progress; much remains to be done. The civil station itself is reported to have been considerably improved by the late Magistrate, Mr. Tweedie. Rank vegetation has been prevented from springing up by the employment of extra-mural prison labour (lately sanctioned by Government) paid for by the town funds. The health of the inmates of the jail, of the police battalion, and of the civil population generally, has been good. The daily average of sick to strength amongst the prisoners has been 10·41, and the total number of deaths 7 to an average daily population of 187·12. The greater part of the district was more than usually inundated during the past rainy season, causing considerable loss to the ryots from submersion of their crops. As the country dried up, and the rivers subsided, fevers prevailed to a considerable degree, but without causing any great increase of mortality.

**RAJSHAHYE, (Sudder Station Rampore Beaulah.)**—The most important measure here adopted during the year was the systematic protection of the station from the further incursions of the river Ganges. Some years ago great part of the station was altogether swept away, and great fears were entertained lest the entire town should thus disappear. The conservancy, drainage, and general sanitation of the station and bazars, are still very defective. It is much to be desired that the local authorities should vigorously take up these subjects.

**BOGRAH.**—The year under review was unusually healthy. The harvest was much above the average, and food consequently very cheap. Numerous sanitary improvements have been proposed, but none effected. The condition of the station and district is reported by Mr. Connolly as being precisely the same as it has been for years past. He writes:—“Nothing is done, and the public do not believe in the existence of a municipality.” The Civil Surgeon’s report is short, as he has little to add to what he wrote last year. He then carefully pointed out the chief sanitary defects of the place, which, as far as I can learn from the present report, still exist unchanged. It would appear that the deteriorated state of the river Karatoya (a tortuous tributary of the Padma, running immediately under the station) merits careful consideration. Silting is going on steadily from year to year, the flow of water is decreasing, and for nine months in the year there is a mere channel barely navigable.

by the smallest description of country boats. With the cessation of the rains in September, and on the subsidence of the river, fever and bowel complaints perceptibly increase, and cholera generally prevails in November and December. At this season the bed of the river and its banks are covered with animal and vegetable matters in a state of putrefaction, and the noxious exhalations arising from these sources are very offensive. Objectionable excavations are said to exist in the immediate vicinity of the jail, the District Superintendent's house, the post-office, and the English and Vernacular schools. These holes ought to be cleaned and improved or filled up altogether. People should not be allowed, for the purposes of nature, to frequent the strip of lowland which adjoins the station. More careful conservancy arrangements should be instituted, and the use of public latrines might with advantage be introduced. Dr. Connolly recommends the employment of prisoners for the improvement of the station. This appears to me to be very desirable, not only at Bograh, but at all other stations. Amongst the pupils, numbering on an average above 120, at the English school of Bograh, the proportion of miasmatic diseases ranges from 25 to 30 per cent. It would appear that there is great room for improvement as regards the action of the municipality at the station. No extraordinary effort would be necessary to remove many of the local causes of disease, which have been carefully pointed out by Dr. Connolly.

**MAIDAH.**—A small beginning has here been made with the drainage of the sudder station under the personal supervision of the Civil Medical Officer. The main road from the jail to the sudder distillery on the north, a little more than a mile in length, and another branch road, have been drained. Some of the small lanes in the bazar and the densest part of the Native town have also been improved. A public latrine has been erected, by orders of Government, out of the municipal funds, close to the cutcherry, for the convenience of the public; but the people prefer the mango-topes, places covered with under-wood, and the river-bank, to this public privy. The conservancy establishment of the sudder station consists of five sweepers, a number quite insufficient for so large a place. A cart for the removal of sweepings has recently been added. The sanitary condition of the town is very defective; there is no proper drainage. I feel convinced that in this respect the place might be much improved without any great outlay of money, but it is a work which should be specially entrusted to an engineer. Careful levels of the whole town and station should be taken, and all accumulations of stagnant water drained off either into the jheels situated to the west and south of the town, or, if possible, into the river itself.

**RUNGPORE.**—Dr. Bowser reports that this station is still very much as it was more than six years ago. There has not been the slightest improvement in sanitation, and it is said that there is no attempt at conservancy within the whole of the municipal limits. The Civil Surgeon characterizes the meetings of the municipality as a farce. The place still maintains its reputation for great unhealthiness, particularly from June till November. There has been no attempt made to drain the extensive swamps in the neighbourhood of the station. This is a matter which has often been discussed and written about at considerable length, yet the highly unsatisfactory state of the localities immediately adjoining the station remains unchanged. I feel convinced that engineering talent could profitably reclaim much of the swampy land near Rungpore, thereby greatly improving the salubrity of the place. I would anxiously invite the attention of the Government to this point. Writing of the prevailing fever, the Civil Surgeon remarks: "It usually runs a rapid course, producing in almost every instance enlargement of both spleen and liver; dropsy supervenes, and death usually takes place in a fortnight or three weeks from an attack of diarrhoea." He also writes: "In thousands of cases of post-mortem examination I have always found the spleen larger than the normal size. I do not think the place is improving in healthiness. Its sanitation is as bad as it can possibly be: in fact, there is no attempt at such a thing."

**JULPIGOREE.**—In this district fresh tracts of land are every year being reclaimed from jungle and swamp and brought under cultivation; in this way its sanitary condition will doubtless in time be greatly improved. The roads in the town of Julpigoree itself have lately been repaired and widened, and some new thoroughfares have been opened out. A new market-place has also been constructed in a convenient situation. The trench system of latrines has been introduced in the cantonment for the use of the men of the 2nd Regiment, N. L. I., but Dr. Thornton, the Civil Surgeon, reports that this arrangement does not work well, chiefly in consequence of the general dampness of the place. It is probable that covered latrines on the jail principle would here be more suitable; dry-earth might be stored and made use of daily for making *poudrette*. No epidemics occurred in any part of the district during the year 1870, and the people generally appear to have been tolerably healthy. A great improvement in the health of the 2nd Regiment, N. L. I., has occurred since its arrival at Julpigoree. When it was at Calcutta during the year 1869, the average daily sick-rate was 40·5, against 26·7 at Julpigoree during 1870. In the former year 24 sepoys of the Regiment died, during the latter only 13.

**DARJEELING.**—The district was remarkably healthy during the year; there was no epidemic. Fevers and bowel complaints were far less prevalent than in 1869. Of late years the appearance of the terai has changed very considerably. Its forests and swamps are disappearing, being replaced by thousands of acres of tea cultivation. Dr. T. Mathew is of opinion that mortality is by no means so great in those parts as it is usually believed to be. He has written carefully on this subject, embodying his opinions in an article entitled "The Health of Settlers in the Darjeeling Terai," which was published in the *Indian Medical Gazette* for February 1870. During the past year six or seven new Europeans have established themselves in the terai. Of these one died; there was no serious sickness amongst the others. The conservancy of the station is being attended to. As far as practicable, the municipality of Darjeeling have carried out the agricultural utilization of the waste matters of the station. Considerable difficulties have to be encountered, and the present results are by no means such as might be desired, but I have no doubt that improvements will steadily occur. The Deputy Commissioner takes a genuine interest in the subject. It is noteworthy that there was but one death in the jail during the year, a rate of mortality under 20 per 1,000; the number of sick in hospital rarely exceeds four, whilst it is sometimes empty for more than a month at a time. No death occurred amongst the adult European residents constituting the civil community in the station; in the district *only* three Europeans died. There was scarcely any severe sickness either in the district or in the station. In the winter of 1869-70 the most serious ailment which prevailed amongst European children was croup; three deaths occurred. Besides these casualties two infants died, one of congestion of the brain, and the other of congestion of lungs, and this represents the total mortality amongst the children of residents during the year. Dr. Mathew believes that the unusual healthiness now referred to is to a great extent to be accounted for by the fact that the rainfall for the year under review exceeded the average (120) by 30 inches.

**PURNEAH.**—There was no epidemic of cholera or small-pox in the district, and nothing exceptional either in the nature or amount of the more prevalent diseases, viz. fever, spleen, and bowel complaints. There was no excessive mortality from these causes.

Scarcely any progress in sanitation has been made; certain parts of the station and district require to be cleansed of jungle and underwood. The obstruction of the embanked roads of the station, as well as the Ganges and Darjeeling road, and the silting up of the outlet of the Sowrah, are important matters to be considered. The station soil is sandy, protected by a layer of clay to the average depth of about one foot from the surface. It seems to have been the bed of some old rivers; at present it is encircled by the Sowrah to the east and the Kossey to the west. The draining of the station was once attempted, but the channel then cut to let out water forms an additional stagnant marsh, and the outlet of the Sowrah itself is navigable only during the flood. Unless something be done in this direction no other sanitary measures will be of much use.

**BURDWAN.**—In the town the municipal commissioners opened the first public latrine on 1st December; it is working exceedingly well. Funds have been voted for the construction of four or five more during the year 1871-72, but too much delay is allowed to occur in this matter. Dr. Mantell very properly recommends the raising of a small loan for latrine purposes, so that the number necessary throughout the whole town might be built and brought into use without delay. Until this is done a pure water-supply cannot be provided for the people, as it is clear that until the filth which lies on the surface of the soil is removed, the water which drains into the tanks, and that which percolates into the wells, must be contaminated by it. The municipal commissioners have decided that they are not opposed to the raising of a loan under certain conditions for the purposes of sanitation, if such could be shown to be clearly necessary; but as they are difficult to convince on this point, Dr. Mantell, not unnaturally, reports that they are as far off from the desired object now as they were some months previously, when it was resolved that no loan should be raised. My opinion on the subject is quite made up. I believe that the best, if not the only mode of rectifying the general sanitary defects of places like Burdwan, is to raise a sufficient municipal loan, payable in 20 or 30 years,—a sufficient sum being set aside monthly from the present resources of the municipality to meet the gradual repayment of capital and interest. It is too much to expect that we can anywhere at once realize a sufficient sum of money from the present inhabitants of any large place to counteract all the evils of the past, and to achieve what is required for the future.

**BANCOORAH.**—The district is probably healthier than in former years. Mr. Vincent Richards, the Civil Medical Officer, has submitted an excellent report, illustrated by numerous charts, showing the mortality in the different parts of the district, the course of epidemics, and the meteorological conditions which prevailed. These subjects will be taken up in a later part of this report. Certain local improvements are noted. One very dirty tank, which was pointed out to me during my visit at Bancoorah (the water of which abounded in confervoid growths, infusoria



in great numbers, particularly various kinds of Paramicium and Rotifers, diatomaceæ) has now been cleaned, an injunction having been issued on the owner. Mr. Richards still complains of neglect in respect to cremation. Numbers of pilgrims pass through Bancoorah, and the bodies of such persons as die at the rest-house or elsewhere, if unclaimed, are simply thrown away by an old woman, who thus performs the duty of a *moordafurash*. The Civil Surgeon very naturally remarks:—"Apart from sanitary reasons, humanity suggests that the bodies of all unclaimed persons, or of those sent in for post-mortem examination, should undergo cremation." He adds, "There is, I believe, a fund which is made up of the proceeds of the sale of unclaimed property and sums found upon the bodies of travellers, from which a large amount accrues annually to the Government; surely, such a fund should bear the charges for cremation of unknown or unclaimed bodies." I entirely concur with Mr. Richards in this opinion; indeed, the subject is one which merits special attention. It is not at Bancoorah alone that the remains of the dead are disposed of in a careless manner; in some districts neglect in this respect amounts to a very grave abuse. I scarcely think that the Government can be aware to what an extent this prevails. On such a point illustrations are better than abstract appeals. As an instance of what happens in certain places, I may mention that in January 1870, at a time of exceptional sickness at Burdwan, I found that the proper disposal of the dead was a subject to which the municipality seemed to devote but little attention. I anxiously bring this matter to the notice of Government, and hope special orders may be passed having reference to Bancoorah and all other places where the bodies of pilgrims are simply thrown forth in the open. Mr. Richards observes that the treatment of Juggernaut pilgrims in the charitable dispensary at Bancoorah involves an unfair drain on the funds of that institution. The local inhabitants frequenting the dispensary thus run extra risk of contracting fresh diseases; and the very filthy condition, and often moribund state, in which the pilgrims are brought in, deter many from seeking relief at the dispensary who would otherwise wish to be received as patients. A nuisance which formerly existed near the dispensary, from the people being in the habit of resorting to some jungle adjoining it, was put a stop to by orders being passed for the clearance of the said jungle. A new branch dispensary has been opened in the town for the accommodation and convenience of the poor.

**BEERBOOM.**—The town, with the exception of the partial outbreak of cholera during the months of March and April (when 18 deaths were reported by the police), has been very free from sickness. The district was also very healthy, although parching drought prevailed between the cessation of the rains in October 1869 and their commencement in June 1870, seven months, during which not more than three inches of rain fell. No important sanitary improvement has been carried out in the town of Soory during the past year. Efforts have however been made, and with considerable success, to induce the inhabitants, for their own welfare and comfort, to co-operate with and assist the conservancy staff by putting out of their dwellings and enclosures, for removal by the conservancy carts, dirt of all kinds, which was heretofore allowed to accumulate until it suited the convenience of house owners to have it removed. The new arrangement has no doubt been conducive to the general health of the town. The practice, too, very prevalent among the inhabitants, of discharging, through holes made for the purpose in the walls surrounding their houses, flowing excreta and slush of all kinds into the streets and lanes, has been checked, and those guilty of it heavily fined. Why should this not also be done in all other towns and bazars?

**RAJMEHAL.**—The condition of this place is very unsatisfactory. It has fallen into decay; jungle prevails on all sides; the water-supply is very bad; there are numberless neglected tanks; and there are a great many buildings in ruins, which have become the resort of wild animals. The Ganges has receded from the station, and wide swamps bound it on the west and south-west. The year 1870 is reported to have been one of the most unhealthy on record. There were no less than 200 cases of cholera. The percentage of mortality in the jail on daily average strength was as much as 9·2. Rajmehal stands greatly in need of improvement, more particularly as it is a place through which many pilgrims pass at different seasons of the year.

**DEOGHUR.**—Improvement in the sanitary condition both of the town and the neighbourhood has been slowly, but steadily progressing. The town has commenced to spread itself out, from the fact of shops and houses being built one by one outside its former boundary. Streets have been widened, so that where two men could scarcely walk abreast before, and where the confined air gave clear indication of putrefying filth in the drains, a buggy or a dog-cart can now be driven with ease, and the people breathe an atmosphere comparatively sweet and wholesome. In the place of narrow grooves in the soil, on either side of the roads real *pucca*, though unpretentious, drains have been constructed, by which the percolation of dirty water into the soil has to a great degree been prevented. Dr. Chandra, who takes much interest in the improvement of Deoghur, reports that the time is not far distant when progress will there be made with rapid strides. The place is visited by pilgrims in vast numbers from all parts of India. For more than four years the Civil Surgeon has

been urging the authorities to improve its sanitary condition by organizing a local municipal government, and by building *serais* for pilgrims outside the town in different directions. At last sanction has been accorded for the construction of such *serais*, and the Municipal Act has been extended to the town and a committee appointed. This happened but recently, so that the results will be recorded in the history of 1871 and after years. The railway chord line was opened on the 1st January 1871, and this event will indirectly conduce very materially to the sanitation of Deoghur. In former years pilgrims coming from great distances arrived at this place wearied and weak, and on this account they were obliged to remain for some time before undertaking their homeward march; thus overcrowding used to result, with all its concomitant evils. But now long journeys being effected in a short time by rail, the pilgrims arrive without great fatigue, and so their stay in Deoghur is proportionately shortened. The railway may bring in an increased number of pilgrims, yet it will assist in preventing overcrowding by quickly taking them back towards their homes. The completion of the railway has also done good as regards the health of the district. During its construction colonies of coolies were scattered all along the line, living either in the open or in rudely constructed huts, exposed to all the vicissitudes of weather. Amongst a population so located, under circumstances antagonistic to all principles of sanitation, epidemics of small-pox and cholera used to be of frequent occurrence; and such visitations, either originating amongst this floating population, or being imported from distant places by fresh comers, prejudicially affected the general health of the district; but with the completion of the railway this large population of squatters has disappeared, and the country along the line, and for some distance on either side, is now in a more satisfactory condition than formerly. The Deoghur Jail has maintained its reputation for healthiness; only one death occurred during the year; the daily average strength of prisoners being 45, and the daily average sick-rate, 1·4. The total admissions of the hospital were 50, against 68 in the previous year.

**HAZAREEBAUGH.**—Dr. Delpratt reports that the three towns of Hazareebaugh, Echāk, and Chuttra, have undoubtedly improved in matters of sanitation, under the able guidance of Colonel H. Boddam, the Deputy Commissioner, whose personal influence and authority continually make themselves felt amongst the Natives for their good.

**RANCHEE.**—A good many minor improvements are reported. Some new roads have been cut, and one very insanitary bazar, called Chadri, altogether cleared away from the centre of the station, leaving clear an excellent site for public buildings, on which are now being erected a new post-office and a new charitable dispensary; numerous long lines of objectionable dirty aloe hedges have been cleared away from many parts of the town and its vicinity; new surface drains have been cut in all smaller roads and alleys, which previously had none, and old drains and ditches have everywhere been reclaimed and cleansed; many of the older and smaller bye-ways have been improved as regards levels, and their inequalities remedied, so as to prevent stagnation and improve drainage; pools, tanks, and holes, whence building earth had been excavated in past times, have been filled up; forest trees have been planted along some of the roads and in the jail compound. One very insanitary quarter of the town, behind the eastern side of the jail, where cholera was specially prevalent during the outbreak of last year, has had a new road opened into it, with the effect of increasing ventilation and cleanliness.

**MAUNBHOM, (Sudder Station Purulia.)**—The town of Purulia is reported by Dr. Wilson to have been vastly improved within the last two years, since the introduction of Act VI (B.C.) of 1868 and the establishment of a town committee. The town is divided into five circles, each under the superintendence of a member of the committee. Meetings are held monthly. Municipal constables now guard various sources of water-supply and prevent defilement of ground on the edges of tanks and the sides of roads. Nuisances are much less common than formerly. An excellent water-supply is available from the large and beautiful lake which is situated to the north of the station.

**SINOBHOM, (Sudder Station Chyebasa.)**—The introduction of section 24 of Act V of 1861, which came into force in the town of Chyebasa on the 15th June 1870, was a great step in the right direction. The non-observance of those sanitary rules which are enumerated in the 5th and 7th clauses of the above section was formerly of common occurrence, and it was usual to see filth and rubbish thrown out from the houses on to the roads; but since the introduction of section 24 people are careful not to break the law, and any infringement of it is promptly proceeded against. Nuisances have been much abated by the imposition of fines, and by increased vigilance on the part of the police. One of the tanks in the station has been specially set apart for the purpose of supplying unpolluted water for drinking and culinary purposes to the inhabitants of the neighbourhood. This tank has its banks much raised above the level of the surrounding land, and can thus receive only direct rainfall and no surface water; it requires deepening, however, as in the hot season it is apt to

dry up almost altogether. A new tank is also being dug through the generosity of a Native inhabitant of the town. The population of the town of Chyobasa appears to be rapidly on the increase; from a census taken in 1867 it was believed to be as follows:—

Men .. .. .	792
Women .. .. .	785
Children .. { Male .. .. .	406
{ Female .. .. .	324
Total .. .. .	2,307

But by a later enumeration, taken in 1869, the following results were arrived at with reference to each separate *tola* within the boundaries of the town:—

Tola.	Men.	Women.	CHILDREN.		TOTAL.
			Male.	Female.	
Chyobasa Town ... .. .	486	337	117	08	1,038
Line Tola ... .. .	158	128	49	57	392
Burra Bazar ... .. .	254	307	179	168	908
Burgendauz ... .. .	96	125	60	38	328
Band Tola .. .. .	76	106	79	70	331
Necmdce ... .. .	155	152	86	83	476
Total ... .. .	1,235	1,155	570	514	3,473

The conservancy establishment should be increased. The health of the district was by no means satisfactory during the year under report. Three epidemics prevailed, which will be alluded to hereafter. The mortality in the police was three times as great in 1870 as in 1869.

**BHAUGULPORE.**—In the municipal district considerable improvements are in progress. An attempt is being made to improve the water-supply, which is extremely defective. For this purpose it is proposed to sink wells of large diameter to such a depth as will give 15 feet of water at the drier season of the year. At least twenty of these will be required, each of which will cost, it is reported, upwards of Rs. 1,000. Three are now under construction, and it is proposed to add to this number every year. Three sites for burial-grounds have been selected and taken up during the year to the south of the town; they are well situated and suited for the purpose. Each site covers 10 beegahs of land, round which a bank is to be raised, and all other public burial-grounds will be closed. A slaughter-house is in course of erection, but it is not yet completed. Two new latrines have been projected. Conservancy has been better attended to than formerly. Dr. Baillie advocates the taking up of some of the lands now cultivated with high crops in the midst of the station, and laying them out with trees, &c. The want of funds is the great difficulty. Little or nothing has been done in the way of drainage. Dr. Baillie does not concur in an opinion, attributed to the late Magistrate, as to the great expense which thorough drainage of the whole town would entail. From the undulating nature of the ground, he believes that there is probably no station in Bengal which affords greater facilities for natural drainage. In some parts of the town where this is most required, large and ample drains, some of them with brick outlets, have been allowed to become ruins, and their improvement is now a matter of conservancy rather than of engineering. With regard to certain tracts of low ground at the eastern end of the station, which during the rains are covered by the river floods, and during a great part of the remainder of the year are objectionable and noxious to health, Dr. Baillie believes that these might be considerably improved by the construction of proper sluice-gates, either to detain the water or to allow it to run off, as might be advisable, and this at an expense by no means beyond what the municipality may be fairly expected to incur, after some other still more pressing demands have been complied with; meanwhile the owners of private tanks should be called on to keep them in repair. The annual inundation commenced very early, and remained at a very high point for an unusual time. The Ganges began to rise in the early part of June, and remained at full flood till near the middle of October. During a great part of this period nearly two-thirds of the district was covered with water, and even quite at

the end of the year very extensive tracts were still submerged, exclusive of the permanent bheels which remained throughout the hot season. The price of food was low throughout the year.

GYA.—Dr. Russell, whose report is, as usual, a careful one, states that some actual progress in sanitation has taken place during the past year. The meetings of the municipal committee were held regularly every fortnight, and Mr. A. V. Palmer, the Chairman, took considerable personal interest in looking after the sanitary condition of the town, and both, by precept and example urged the other members of the committee to do the same. The town has been divided into *mohullas*, and a certain number of these allotted to each municipal commissioner, whose duty it became to supervise them thoroughly and to bring the names of all offenders to notice. Three large tanks were drained and cleaned out; objection, however, was taken by the Civil Surgeon to black mud, which was excavated from these tanks, being utilized for the construction of *bunds* within the station; fortunately no mischief accrued. A strict supervision has been kept over the conservancy of the town, which is very creditable to the municipal commissioners, who have, without exception, spared neither time nor energy in looking after the sanitation of the place. Dr. Russell complains of the neglected sanitary condition of the town of Sherghotty, situated twenty miles from Gya. The usual reforms will have to be introduced at this place, with a mixture of coercion and persuasion, as the inhabitants are ignorant and unwilling to act. Dr. Russell reports that during an experience of this sub-division extending over nearly six years, he finds that no radical reforms, in a sanitary point of view, have been made in any part of the town, beyond metalling and draining the station road and repairing seven or eight small bridges for water-courses. The *mohulla* watchmen are absolutely careless as regards conservancy and the prevention of nuisances. Fortunately the climate of the place is healthy, the number of sick is small, and the mortality, considering the population, not great. No epidemics occurred during the year, and with the exception of unusual heat, it was not characterized by any peculiar events. The habitual use of intoxicating drugs and of "toddy" continues to be a source of constant disease amongst certain classes in this district, the most usual results being emaciation, atrophy and general paralysis, or ascites from cirrhosis of the liver, or general dropsy from organic disease of other internal organs. The average daily sick-rate of the prisoners in the Gya Jail was 13·46, with an average daily strength of 408·77. A single fatal case of cholera occurred. The pilgrim hospital at Gya is said to continue to be a very useful institution, but it is very inadequately supported by the Natives. The municipal donation of Rs. 50 per mensem since January 1st 1870 has been a great help.

SHAHABAD, (*Sudder Station Arrah*).—The drainage of the town of Shahabad has been improved by the raising and metalling of several roads which run through it, and by the clearing out of drains and cuts on the sides of the streets. The water of the two principal tanks, and of some of the large wells, has been guarded from pollution, and the people themselves allow that the restrictive measures were necessary, and the cause of an improvement in public health. Dr. Durant, in alluding to the great importance of a pure water-supply and dry-earth conservancy, draws attention to the fact that before proper attention was paid to these subjects, the death-rate in the Arrah Jail averaged annually over 8 per cent., whereas now it stands below 2 per cent. He believes this satisfactory result to be entirely due to sanitary improvements and general good management, and thinks there is no reason why the outside and free population should not, under like circumstances, enjoy as great an immunity from disease and death as their imprisoned fellow subjects; but time and means are both necessary to overcome many existing difficulties and prejudices. The general sanitary condition of the district is still highly unsatisfactory, and the little that has been done at Arrah or at the three sub-divisions of Sasseram, Bhuboah, and Buxar, represents but a very thin end of the improvement wedge. On the whole 1870 was a healthy year. It was singularly free from epidemics, and the usual outbreak of small-pox during the cold weather months and beginning of the hot season may be said to have been absent. The rains were very heavy and continued up to a late date, even so late as the end of October, and as a consequence an unusual amount of fever of a severe intermittent and remittent type prevailed during the succeeding two months over nearly the whole of the district, but chiefly in the southern portions of it. The crops during the year were good, and the price of food below that of the previous year. A proof of this is to be found in the fact that each prisoner in the Arrah Jail during the year 1869 cost Rs. 34-5-10, whilst in 1870 the corresponding charge was only Rs. 28-2-1.

SARUN, (*Sudder Station Chuprah*).—The town of Chuprah is said to have been much improved of late years, and the general conservancy has been more carefully looked after. The year under review was unusually healthy; no epidemics prevailed. The town has been divided into eight wards, and a municipal commissioner appointed to each ward to inspect it periodically, and to see to its general cleanliness. Certain improvements of the streets are still being carried out, and the tanks and wells are said to be in tolerable order. The locality is

not a malarious one. The town is well drained, with the exception of the north-eastern portion of it, which is low and very damp in the rains. The filth and sweepings of the town are removed daily to a common at some distance from the town, where it remains unburied, until, for the purposes of cultivation, it is ploughed into the land. Several places are set apart for the burial of Mahomedans.

**TIRHOOT, (Sudder Station Mozufferpore.)**—The sanitary measures adopted during preceding years in the town of Mozufferpore were maintained and extended. The construction of public latrines was commenced towards the end of the year; dry-earth conservancy is to be regularly adhered to. Advantage was taken by the municipality of the unusually high floods to refill the tanks that had become dry during the hot season.

**CHUMPARUN, (Sudder Station Motecharce.)**—The report from the station is of a general character in consequence of the present Civil Surgeon, Dr. J. Cullen, having only recently been appointed. No mention is made of epidemics or of unusual disease. The climate of the district is naturally favorable, and the people are for the most part healthy, able-bodied, and fit for hard work.

**MIDNAPORE.**—Dr. R. Mathew believes that the health of Midnapore and of the immediately surrounding country has improved of late years. Thirty years ago the country surrounding the sudder station was covered with dense tree jungle and underwood, the present high road to Raneegunge was a mere track through the forest, and wild elephants were to be found within six miles of the Magistrate's kutcherry—all this is now changed. The country has been cleared, and every spot capable of yielding any return has been brought under cultivation within at least a radius of forty miles. Such measures have contributed in no small degree towards establishing its present comparative salubrity. The manager of the extensive silk and indigo concerns that exist in this district confirms the opinion of the Civil Surgeon, that when he first came to the district fevers of a severe type were exceedingly common, no less than seven of his European assistants being prostrated at the same time. During the time that Dr. Mathew has been in medical charge, now about eighteen months, not a single case of fever has occurred amongst the planters, and only *one*, a mild intermittent, amongst the European residents of the station. In Sir Ranald Martin's time the highlands of Midnapore were always referred to as being noted for the fatal character of their fevers, and their unhealthiness was believed to depend upon the presence of iron clay resting on decomposed primitive rock and lithomarge, the soil and water being strongly impregnated with iron oxides. Dr. Mathew observes that experience has taught how little in this instance ferruginous soil is concerned in the production of fevers. The soil of the Midnapore highland contains as much iron now as it did in the year 1820, yet the deadly fevers have disappeared; in fact, they have taken their departure with the jungle and the elephants. This line of country is one of great interest, inasmuch as it is annually traversed by many thousands of pilgrims from all parts of India. For centuries this has been the case; and it is much to be regretted that the past records regarding the medical history of this part of the country are scanty and unsatisfactory. It is to be hoped that in future they may year by year be carefully collected. Midnapore itself being as it were the gate of Orissa, there are but few parts of the country of greater sanitary and social interest. A marked contrast exists between the western and northern portions of this district, with its laterite soil and its sparse population, and the lowlands formed by the combined deltas of the Cossye, Selye, and Russolpore rivers. The physical aspect of the former is singularly pleasing; its natural drainage is good, and the people now maintain a fair standard of health, having many of the characteristics of the Sonthal race, to which they are closely allied in blood as well as in many of their habits. On the other hand, the flat alluvial country already alluded to is low, swampy, densely populated, and traversed in many places by a complicated system of *bunds*, which were constructed to control the destructive influence of storm waves and of inundations, to which this part of the country is very liable, and which from time to time prove a lamentable source of destruction to life and property. Towards the sea, in the neighbourhood of Contai, and even the sanitarium of Chandpore itself, to which public attention has of late been directed; malarious disease prevails to a great degree during the rainy season. Contai, Hidglee, and Tumlook fevers are bye-words. In Dr. Mathew's opinion these places, during the rainy and cold seasons, would contrast unfavorably with any district of Eastern Bengal with which he is acquainted. During the hot weather this quarter of the district is swept by a powerful sea-breeze. Chandpore, which is directly on the sea, is a delightful residence during these months. No sources of malaria exist, at least between the grassy plain on which the bungalow stands and the sea. The surrounding country is open, and the magnificent beach, which extends as far as the eye can reach, sets off to advantage this so-called Eastern Brighton. So long as the sea-breeze lasts, Chandpore is all that can reasonably be desired in any station on a tropical sea; but when the sea-breeze lulls, and a land-wind takes its place, residents at Chandpore, at any season of the year, run no small risk of contracting a severe attack of malarial fever. Another drawback to a residence in this part of the country is the difficulty which at

present exists of procuring an ample supply of good water. Wretched little tanks contain water so impregnated with saline matter as to be barely drinkable, and at the same time possessing purgative properties so violent, as to compel the engineers residing there to bring water for drinking and cooking purposes from Contai, where a fair supply can be obtained from wells sunk to a considerable depth. I have thought it well here to submit these notes regarding Chandpore almost in Dr. Mathew's own words, as considerable interest has lately been attached by the public and the press to this locality, as one capable of serving as a sanitarium for invalids and health-seekers from Lower Bengal. The question of the establishment and acceptance of this place as a sanitarium resolves itself within simple limits. It remains to be seen whether it will pay hotel-keepers or any other speculators to keep up proper house accommodation during the whole year, in consideration of the profits which might be realized exclusively during the hot season. Time and experience will determine this question. Meanwhile all that the sanitarian need do is to guard the public against the risks necessarily attendant on a residence at such sea-shore localities at all seasons except during the dry and hot months of the year.

Dr. Mathew reports unfavorably of the sanitary condition of the town of Midnapore. It is in a very filthy condition; tanks are neglected; there is no system of drainage deserving of the name; many quarters are much too crowded; there are no public latrines, and no arrangements for the removal and disposal of the *excreta* from private dwellings (this observation also applies to the European quarter). It is much to be regretted that Dr. Mathew can cite no single sanitary improvement as having been accomplished during the past year. He writes:—"Many propositions have been made both by myself and other members of the committee for the purpose of removing some of the many nuisances which exist, but some apparently insurmountable obstacle to any thing being done has presented itself with disheartening frequency." Dr. Mathew proposed that advantage should be taken of the prolonged drought, in consequence of which nearly all the wells and tanks have become dry, to clear out and deepen the sources of water-supply. Such a chance of effectually doing this had not presented itself for years, but the opportunity was allowed to pass by and nothing was done. The Civil Surgeon writes in a tone of disappointment of the Midnapore Municipal Committee; he considers that the only measure likely to remedy the present inaction lies in carrying out the proposition made by the late Dr. Allen for dividing the town into blocks or sections, and holding each Municipal Commissioner responsible for the supervision of one of these divisions.

The report of the sanitary condition of the small town of Tumlook is highly unsatisfactory. Long notorious for its great unhealthiness, no effort seems to have been made to improve the place, or even to mitigate the local causes of disease. It is true the frequent inundations from the rising of the river Roopnarain are doubtless most difficult of control; but there is no good reason why ill-kept tanks and uncontrolled jungle should everywhere meet the eye. The Municipal Committee is said to be composed entirely of Native gentlemen, not one of whom seems capable of appreciating the benefits derivable from the observance of the commonest laws of health. Dr. Mathew, apparently not without reason, considers such a committee utterly useless, if not actually obstructive, and he suggests that the sanitary condition of such a small town as Tumlook might with advantage be entrusted altogether to the officer in charge.

**BALASORE.**—The sudder station of Balasore is reported as being healthy and congenial alike to Europeans and Natives. It is believed to be healthier than formerly. Few traces of the famine of 1866 now remain. Fields that were long fallow have been reclaimed by the plough, and prosperity and plenty have taken the place of misery and want. The Civil Medical Officer, Mr. Lyons, reports that much has been done for the improvement of the town through the energy of the present Magistrate, yet much remains undone, and this chiefly from the poverty of the municipality, the annual assessments under Act VI (B. C.) of 1868 amounting to little more than Rs. 5,000, of which Rs. 1,970 are expended on the town police. The present conservancy establishment consists of 7 *mekters* and 3 conservancy carts to meet the wants of over 14,000 souls, and to remove the house cleansings of 3,247 houses. It is reported that with one honourable exception (Baboo Brindabun Chunder Mundul) none of the wealthy Native inhabitants take the least interest in the sanitation of the town. Distinct opposition is apparent to any improvements involving the smallest private expenditure. A few of the best tanks in the town have now been specially set apart for drinking purposes. The disgusting condition of most of the others, the number of which is legion, presents an ample field for the exercise of the present Magistrate's zeal in matters sanitary. There is nominally a municipal committee in the place, but the Civil Surgeon has never heard of a single meeting. There is no regular system of drainage in the town or district; there are neither cess-pits, public latrines, nor trenches in Balasore. The Ooryahs are peculiarly prejudiced against any thing like sanitary improvements. Mr. Lyons observes that he has taught and lectured frequently to congregations of the people on such subjects, but without any effect beyond his being allowed a patient hearing. The district

as a whole may be said to be healthy; one place however, called Dhamra, at its southern extremity, is very much the reverse. This outpost coast station, which lies between the river Byturnee on the north and one of its branches to the south, is believed to be perhaps the unhealthiest part in Bengal.

**CUTTACK.**—The general health of the district during the year 1870 was good; neither cholera, small-pox, nor epidemic fever of any kind prevailed to any great degree. Nothing special has been done towards practical sanitation in the district during the year. The towns of Cuttack, Jajipore, and Kendraparah, are locally cesses and the proceeds applied to town police and improvements. A full report of the condition of the town of Cuttack was submitted by Dr. Stewart in the month of October. The Town Committee hope, with better funds at their disposal, to employ a conservancy overseer and introduce public latrines and other improvements at the beginning of the official year.

**POOREE.**—The only sanitary improvement effected was the construction of two cisterns on the south side of the temple to receive all the culinary refuse water. Subscriptions were raised to deepen and clear out the tank in the Juggernath Bulbha garden, which the inhabitants intended to set apart for drinking purposes. Another subscription of Rs. 1,200 was raised to form a direct communication with the Uttarahnnullah and the Markund tank; a sluice has been completed and the water of the nullah is within 150 or 200 yards of the tank, where there is a raised piece of land. Another sluice will be required to effect the desired communication; the work is not yet complete as was arranged, for which the contractor is being made to pay the penalty. The Narendra tank is already in communication with the Uttarahnnullah by a sluice, where there is also a pucca platform on one side of the Markunda, preventing the flow from the street of rain water and filth to it. The Civil Surgeon recommends the completion of the unfinished portion of the work without delay. Stringent measure seem necessary to prevent the creation of nuisances in the street and in the vicinity of dwelling-houses. The Civil Surgeon suggests the improvement of the general sanitary condition of the town by preventing overcrowding of houses and men, the introduction of a better system of ventilation, the provision of a better water-supply, the filling up or clearance of wheels and ponds; but the town fund is altogether inadequate for these purposes. The Civil Surgeon strongly objects to the sale of the mohaprashad, as being the chief cause of bowel complaints. The manner of feeding the poor in the Dharamsallah is reported to be objectionable; the water-supply of the town is very defective. The number of municipal carts is insufficient. Cess-pits have been constructed and mehters appointed, but the people generally do not resort to them. The burning of the dead is chiefly carried on to the west and south of the temple. The state of the town as regards cleanliness is still unsatisfactory from want of funds.

**GOWALPARAH.**—Lieutenant Lillingston, Deputy Commissioner, and his successor, Major Lance, took great interest in the sanitary improvement of the town. Roads and bridges were repaired, cleared out, and rank vegetation removed, though still much remains to be done. The cutting through the bunds has been proposed, but objected to by the Natives on the score of possible damages being done to buildings. The establishment of public latrines is beset with difficulties, there being no mehters in the station. It is in contemplation to set apart one or more tanks for drinking purposes. Hitherto the corpses of the Mahomedans have been buried in their compounds, but the Deputy Commissioner intends applying to the Lukhipore zemindar to grant a plot of ground for that purpose; but no radical improvements have as yet been made in the district. There were no epidemics during the year, and the district was healthier than usual. "Goureepore district, however, is more liable to cholera than any other on the opposite bank, owing, it is believed, to the jute and rice cultivation.

**KAMROOP.**—The sanitary condition of Gowhatty is very unsatisfactory. There is a large swamp in the station, which is a fertile source of malaria, especially at the setting in and breaking up of the rains. This should be drained, the probable cost being estimated at 4½ lakhs of rupees. It is difficult to carry out an efficient system of conservancy, there being no available funds, and sweepers are not to be found in Assam. At Gowhatty sickness is much more prevalent amongst the sepoys, especially those from the North-Western Provinces and Oudh (who do not stand the climate well), than amongst the prisoners or the police. In 1870 there were stationed here two companies, consisting of men from North-Western Provinces and Oudh, and 3 companies of Goorkhas. The former gave 493 admissions, while the latter had only 320. In 1869 the former gave 646, against 395 for the latter.

From this it is evident that 1870 was much healthier than the preceding four years. When cholera was rife outside the jail, on the recommendation of the Civil Surgeon new prisoners were accommodated in a separate house.

**NOWGONG.**—The state of the civil station is said to be anything but satisfactory: there are no conservancy arrangements; several objectionable large, dry, and deep beds of tanks exist. The Civil Surgeon recommends the introduction of a thorough system of drainage and



conservancy on the dry earth system, the establishment of free circulation of air by pruning and thinning of trees, the removal of filth to a safe distance from the station, and the erection of latrines from Government or local funds (charging 1 anna a month per head, the financial results to be appropriated to the sanitary improvements of the station).

**SEENSAUGOR.**—The inhabitants of the sudder station enjoyed during 1870 a better standard of health than in previous years. Though the district continued much the same as before, there was no exceptional sickness.

The Civil Surgeon considers the place to be improving, especially the sudder station. Through the exertion of the Deputy Commissioner the magnificent tank in Seensaugor has been kept very clean and set apart for drinking purposes; several roads and bunds close to the Dikhoo and Dwareka have been raised or re-constructed to prevent their overflow during the rains. The market also is carefully attended to, and kept free from noxious emanations.

**DIBROOGHUR.**—Dibrooghur was much more healthy during 1870 than in previous years. For the last ten years the sanitary state of the country has much improved. There is an efficient system of drainage and cleanliness enforced. There was no exceptional sickness during the year, which was unusually healthy among all classes. The health of the population, which is estimated at 112,356, is differently affected, the Assamese enjoying the best, and the Hindoostanees and men of Behar the least health. The increase to population by immigrants amounted last year to 1,063. Formerly the people, who were chiefly agricultural, were remarkably indolent and apathetic; of late there has been much improvement in this respect. The channel of Dibroo, from which the people draw their water-supply, was artificially turned by the Public Works Department seven years ago—thus cutting off the water-supply from the station from November to May each year, which forms a most fruitful cause of disease. The articles of food are dear, but 1870 brought a rich harvest. A slight improvement has taken place in the dwellings of the poorer classes. There is no regular system of conservancy at work; the disposal of the dead is carried on far from human habitations; streams and water-courses are safe from pollution.

The people are fond of semi-putrid fish. The Bengallees and the hill residents use strong liquors, while the Assamese indulge to a most pernicious extent in opium, which induces atrophy with dilatation of the heart; even children in arms sometimes use the drug, but the practice is fast declining.

## CHOLERA.

THE history of cholera during the year under review is embodied in the following sections:—

**HOWRAH.**—In the report from Howrah only 9 deaths are recorded in December.

**SERAMPORE.**—Cholera was prevalent in some parts of the district almost every month during the first half of the year, but not in epidemic form. About the middle of February it broke out almost simultaneously at Bidyabatty and Astorah, and soon after it appeared at Serampore and Kishtonagore. In April it spread towards Chunditollah; it then declined and re-appeared in December at Kishtonagore. March, April, May, and June, were the most fatal months. The total mortality amounted to 263 deaths.

**HOOGHLY.**—Sporadic attacks of cholera were reported in Jalehina, Nomaigunge, and other places during the year. In September it suddenly broke out in the jail on the 2nd, and continued till the 9th; 38 cases were admitted, with 19 deaths. There were besides 20 cases of choleraic diarrhoea. Dr. Thompson believes that the disease could be traced to the "vitiated state of the atmosphere," caused by the storage of putrid wheat not far from the jail. Only two cases of cholera were reported at the Baroni Fair held at Tribani on March 1870, out of a congregation of about 16,000 persons. This fact goes strongly against the theory that the disease spreads according to facilities of communication.

**KISHNAGHUR.**—On the 7th February 1870 the police of Hawskhally reported an outbreak of cholera at the village of Govindpore, on the 12th February Moheshpore was attacked, and on the 4th March the thannahs of Jeebunnuggur and Chooadangah. The disease rapidly spread over the latter sub-division. On the 27th May it was abating; on the 24th June it had quite ceased. On the 2nd April the disease re-appeared in the Hawskhally thannah, at the village of Mooragatcha. On the 10th March a few cases were reported from Bongong and Chogdah; after the 4th July the district was quite free from the disease. The total number of villages attacked was 486. A very few cases occurred in the large towns of Kishnagur, Santipur, and Ranaghat. The following table shows a list of the thannahs where



cholera prevailed, their estimated population, the number of cases, and the mortality. Dr. Earl thinks 2,000 might safely be added to the number attacked, and 1,000 to the number of deaths :—

Names of Police Thannahs.	Estimated population.	Attacked.	Died.	Names of Police Thannahs.	Estimated population.	Attacked.	Died.
Sharsu ...	62,200	525	321	Brought forward	643,762	3,630	2,072
Kisheungunge ...	21,700	68	95	Moheshpore ...	67,000	68	40
Jeebunnuggur ...	26,500	502	269	Hauskhally ...	33,300	53	29
Kaloopole ...	22,500	150	79	Gopaulnuggur ...	32,000	212	166
Meherpore ...	16,700	55	46	Santipore ...	44,098	15	8
Alumdangah ...	62,000	516	224	Chogdah ...	40,800	28	20
Nowparah ...	74,000	319	315	Garapotta ...	45,000	6	11
Damoorhooda ...	38,500	149	81	Bludalia ...	27,000	231	131
Gaighatta ...	38,300	154	88	Jangooly ...	24,500	102	114
Kanaghat ...	64,862	44	34	Teyhutto ...	45,200	184	140
Dowlutpore ...	83,000	273	117	Kallygunge ...	41,400	27	69
Choondangah ...	14,000	72	61	Chupra ...	41,350	15	5
Gangnee ...	60,500	216	106	Kurempore ...	71,000	79	60
Bhalooka ...	46,000	556	218	Nekashiparah ...	40,500	7	1
Bongong ...	13,500	31	15				
Carried over	643,762	3,630	2,072	Total	1,196,910	4,657	2,866

JESSORE.—Only 64 deaths are reported to have occurred within the last six months.

MOORSHEDEABAD.—Cholera first appeared in a mild form at Berhampore in March, and then at Dewanserae, Gokurn, and Pulsa in the same month. In April it showed itself at Gowas, Sooty, Jullunghee, Mohimpore, Roghunathgunge, Assanpore, Sujahgunge, Manullabazar, and Gorabazar. Native Doctors were, when practicable, deputed to the places affected, and cholera-pills distributed by the police. The following is a statement showing the prevalence of the disease during 1870 :—

NAMES OF PLACES.	March.		April.		May.		June.		July.		August.		September.		REMARKS.
	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	
Sujahgunge ...	37	16	1	...	2	2	6	5	17	5	8	6	...	...	First case, 2nd March.
Gorabazar ...	32	13	13	7	6	6	4	3	5	5	1	1	...	...	
Pulsa ...	33	15	0	3	...	...	...	...	...	...	...	...	...	...	
Gokurn ...	18	7	2	...	...	...	...	...	...	...	...	...	...	...	
Peertola ...	12	6	...	...	...	...	...	...	...	...	...	...	...	...	
Jullunghee ...	...	...	200	19	52	26	7	...	...	...	...	...	...	...	
Gowas ...	...	...	50	7	35	10	10	7	...	...	...	...	...	...	
Shamnuggur ...	...	...	76	72	23	19	...	...	3	1	...	...	...	...	
Mohimpore ...	...	...	122	51	2	...	...	...	...	...	...	...	...	...	
Manullabazar ...	...	...	5	4	15	7	...	...	...	...	...	...	...	...	
Assanpore ...	...	...	2	2	1	1	...	...	...	...	...	...	...	...	
Sooty ...	...	...	38	16	...	...	29	16	10	11	1	1	...	...	
Shamsargunge ...	...	...	...	...	29	25	9	4	...	...	...	...	...	...	
Roghunathgunge ...	...	...	...	...	...	...	1	1	...	...	17	6	...	...	
Dewanserae ...	...	...	...	...	...	...	5	2	9	2	2	2	...	...	
Nowda ...	...	...	...	...	...	...	7	7	...	...	...	...	...	...	
Borna ...	...	...	...	...	...	...	31	25	...	...	4	4	...	...	
Kalligunge ...	...	...	...	...	...	...	...	5	4	...	...	...	...	...	
Moidapore ...	...	...	...	...	...	...	21	9	...	...	...	...	...	...	
Bhugwangola ...	...	...	...	...	...	...	...	...	21	13	4	4	111	88	
Hurriharpore ...	...	...	...	...	...	...	...	...	...	...	4	4	111	88	Last case, 12th September.
Total ...	157	57	524	141	165	96	150	79	79	41	41	28	222	176	

N.B.—C, in this table stands for the number of cases; D, the number of deaths.

The disease may be said to prevail in the Berhampore district during seven months of the year. It is usually absent during October, November, December, January, and February.

**FURREEDPORE.**—A severe form of endemic cholera broke out in the district in the beginning of 1870; it was at its height in March and April, by which time it had spread itself pretty uniformly throughout all the thannahs.

Dr. B. N. Bose writes :—" It is remarkable that while the district was more or less extensively invaded all over by cholera during four months, not a single case occurred in the jail during its continuance, although daily recruited by fresh admissions from all quarters, as usual, throughout the invasion;" this he attributes to proper hygienic measures carried out in the jail. The following table indicates the prevalence of the disease in different months :—

NAMES OF PLACES.	Estimated population.	January.	February.	March.	April.	May.	Total.	Ratio of deaths per cent. of population.
Belgatchi ... ..	107,565	1	2	9	129	37	178	0.13
Goalundo ... ..	49,070	8	11	85	166	.....	270	0.57
Furreedpore ... ..	37,800	.....	26	63	836	.....	1,215	0.64
Sudderpore ... ..	50,680	.....	.....	14	215	4	233	0.45
Deora ... ..	55,670	10	3	42	101	6	162	0.29
Muxudpore ... ..	84,285	6	4	13	61	1	85	0.11
Goopeenathpore ... ..	15,500	.....	.....	.....	12	.....	12	0.02
Ainpore ... ..	83,105	.....	.....	36	114	19	169	0.30
Bhushina ... ..	83,105	.....	1	17	72	.....	90	0.10
Total	566,840	25	47	279	1,026	67	1,444	0.25

**BACKERGUNGE.**—The island of Dukhin Shabazpore was very unhealthy during the year under report. An epidemic of cholera broke out in the villages in December 1869, and continued till June 1870. The number of deaths is believed to have been 2,000. Fever was also raging at the time. The rest of the district was unusually healthy. Only a few cases of cholera occurred in Burrisaul itself.

**DACCA.**—There was no epidemic. It is worthy of record that this year the inundations were unusually high and unusually long-continued.

**CACHAR.**—The villages in the Hylakandy valley were first attacked on the 16th May; there being 86 cases with 35 deaths. Next the village of Tarapore, close to the station and on the Sylhet road, was attacked. There were 39 cases with 23 deaths.

It is believed that cholera was imported hither from Sylhet, with which place there was free communication, and where cholera was then prevalent. The meteorological conditions also were favourable for the development and propagation of the disease, there being an excessive drought at the commencement of the year.

The station itself enjoyed a comparative immunity from the disease.

**MYMENSINGH.**—There were a few isolated cases of sporadic cholera in different parts of the district, but no epidemic. The total mortality is not given.

**TIPPERAH.**—Cholera prevailed epidemically with greatest virulence from January to April. The following is a statement of the number of deaths in each month :—(Mr. Stork thinks that the deaths are at times much exaggerated and at other times overlooked.)

January ... ..	294	April ... ..	292	November... ..	9
February ... ..	253	September ... ..	4	December... ..	3
March ... ..	254	October ... ..	11		
					Total 1,120

**NOAKHALLY.**—Cholera was reported to have occurred in the early part of the year in the interior of the district. The total deaths from this cause during the whole year amounted to 779. The subjoined statement gives the particulars :—

Names of Places.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December	Total.
Sundeeep ... ..	8	2	.....	2	33	6	.....	.....	.....	.....	.....	.....	51
Hattia ... ..	5	8	25	106	.....	.....	1	.....	.....	.....	.....	1	216
Amargunge ... ..	2	10	40	24	9	3	6	3	.....	.....	.....	.....	109
Hamney ... ..	6	1	20	29	20	3	2	.....	.....	.....	.....	.....	92
Siddharam ... ..	19	7	10	3	3	1	3	.....	.....	.....	5	.....	62
Dezugunge ... ..	4	.....	.....	18	15	5	15	.....	.....	.....	.....	.....	4
Lukhepore ... ..	43	17	21	15	15	21	8	.....	.....	.....	1	1	136
Kaneegunge ... ..	36	14	3	14	11	21	8	.....	.....	.....	.....	.....	107
Total ... ..	123	65	201	308	91	44	33	6	.....	.....	6	2	779

**CHITTAGONG.**—Cholera prevailed epidemically almost throughout the whole year in the central and northern thannahs, particularly during the first half of the year; but few cases

are reported to have occurred in the south. In the town it raged from ~~March~~ till May in a milder form, but over a larger area, than in 1869. The following is a statement of deaths:—

January ...	19	June	140	November...	11
February ...	47	July	103	December...	31
March ...	185	August	69		
April ...	378	September	4	Total	1,210
May ...	215	October	9		

PURNA.—There were but few cases of cholera here in the year under review.

RAJSHAHYE.—During March and April 1870 reports of cases of cholera were received from several parts of the district. It was apprehended it might assume the form of an epidemic, but it turned out merely to be an endemic manifestation. On the 26th February it appeared at Bagmarrah, to the north-east of Beaulah; then at Bilmurreah, to the south-east of Beaulah, on the 3rd March; on the 4th at Godagari, lying to the west; next at Bandaikhara, to the north-east; then at Singrah, to the east; and at Beaulah itself, on the 7th March; then again at Pooteah, to the east, on the 31st March; at Nattore, also eastward, on the 2nd April; at Tannore to the north, on the 19th; and at Charghat, to the south-east, on the 16th July. The number of cases reported was 514 with about 358 deaths; these figures, in the opinion of the Civil Surgeon, are “short of the truth.” On the 11th June epidemic cholera broke out at Peerozeparrah, seven miles south-east of Nattore, and continued till the 22nd, there being 40 cases with 22 deaths in a population of about 300. The epidemic was attributed to foul drinking water, rendered offensive by surface drainage, and to the use of water that had percolated through ground in which human bodies had only recently been buried. The disease confined itself to this locality, and did not attack any of the neighbouring villages lying even within half a mile.

The jail at first continued free from cholera; in October, however, there were 8 cases (and one of choleraic diarrhoea) with 8 deaths.

At Beaulah itself it prevailed for 7 months, from March to November, causing 174 deaths in a population of 42,053. Dr. Bensley believes that the mortality is under-stated. The following statement gives the particulars:—

March ...	55	June ...	10	November, ...	5
April ...	82	July ...	3		
May ...	17	October ...	2	Total ...	174

BOGRAH.—No epidemic.

RUNGPORE.—No data are furnished.

MAIDAH.—Cholera was here prevalent throughout the year; but its intensity, and the numbers of cases and of deaths, were not so great as in 1869. The total number of deaths was 251:—

January ..	7	June ...	57	November ...	1
February ...	2	July ...	14	December...	1
March ..	5	August ...	0		
April ..	34	September ...	1	Total ...	251
May ..	128	October ...	1		

The first case occurred in the town on the night of the 15th April. It was not prevalent epidemically in the district till the middle of May. It commenced to abate in July, but stray cases were reported up to the end of the year. In August alone no deaths were reported.

JULPIGOREE.—Only 26 deaths are recorded during the last five months.

DARJEELING.—The district is reported to have been remarkably healthy during the year 1870, there being only one or two cases reported in the Terai.

PURNAH.—Nothing is mentioned of cholera in the report from this station.

BURDWAN.—There was not much cholera in 1870. At Burdwan itself it appeared in April Dr. Mantell writes:—“The victims to cholera during its visitation in April and May last were chiefly those whose constitutions had been damaged, and whose vitality had been lowered by the fever which raged here so terribly in 1869.” A native doctor was appointed to look after the sufferers. During the four weeks of its continuance there were 52 cases with 29 deaths.

In August it appeared at Culna, when those attacked were isolated, and the pilgrims who, as it was believed, accounted for the spread of the disease, were prohibited from entering the town. About 20 deaths occurred.

BANCOORAH.—Cholera was prevalent at Bancoorah throughout the year, it being at its height in March and April. The Civil Surgeon seems to be certain that it was imported and spread by the Juggernanth pilgrims almost throughout the pilgrim route. The accompanying chart gives the details.

On the 3rd January it broke out at Kanksa, to the north-east, and lying on the pilgrim route, and lasted till 23rd August; the total deaths amounting to 110.

On the 4th Niamuthpore was attacked and continued to be so till 2nd June, during which there were 11 deaths, 8 of these being pilgrims.

At Rancegunge on the north it showed itself on the 7th January and lingered till 1st July, there being 29 deaths.

From the 28th January to 13th April it raged at Bishenpore, 22 miles south-east of the sudder station, where there were 33 deaths.

At Rughunathpore, leading to Niamuthpore, only one death is recorded on the 16th February.

On the 23rd February it appeared at Oudah, 11 miles from Bancoorah, and lasted till the 4th August, 86 persons having died.

At Bancoorah itself it prevailed from 23rd February to 14th October, during which there were 85 deaths.

At Gungajolghatty, 15 miles north of the sudder station, the first case occurred on the 6th March, and the last on the 23rd November; there were in all 49 deaths; 4 of these were Juggernaut pilgrims.

Kolupore was attacked on the 20th March, where it raged till the 21st April, there being only 20 deaths.

From the 27th April to the 29th June it raged at Sonamookhy, east of Bishenpore, where only 6 died.

At Chatnah, 8 miles west of Bancoorah, 38 persons were reported to have died between 16th May and 18th June, and again one death was reported on the 24th September.

There were 26 deaths at Gourandehce, to the north-west of Chatnah. The first case took place on the 19th May.

The following table gives the deaths in each month :—

MONTHS.	Deaths.	Ratio per cent. of population.	MONTHS.	Deaths.	Ratio per cent. of population.
January ... ..	11	2.22	August ... ..	10	2.02
February ... ..	13	2.62	September ... ..	1	0.20
March ... ..	118	23.84	October ... ..	1	0.20
April ... ..	105	21.22	November ... ..	1	0.20
May ... ..	72	14.65	December ... ..	.....	.....
June ... ..	94	18.99			
July ... ..	69	13.84	Total ...	495	.....

**BEERBHOOM.**—Cholera prevailed to a limited extent in the interior during March, April, May, and July. There were 263 cases with 140 deaths. The disease was reported by the police to have been introduced by pilgrims from Gya, Deoghur, and Bukreshur.

**RAJMEHAL.**—There were about 200 cases of cholera at Rajmehal. It was believed by the medical officer that the disease had been introduced into the district by gangs of pilgrims returning from Deoghur during March. In the jail the first case took place on the 10th March, from which date to the 15th April there were 15 cases with 10 deaths. In September there were 2 cases, one of which proved fatal.

**DEOGHUR.**—In the beginning of February, a little before the great *Shibrat Mela*, the first case occurred in the interior, and the disease gradually spread to the town on the 13th. It appeared to have been introduced by pilgrims returning from Allahabad, many of whom died there on their way back. On the 15th a resident of the town first caught the disease. The weather then was cool and pleasant, the thermometer ranging from 53° to 58°, and the wind blowing strong from the west and north-west. A large force of *mehters* was entertained to keep the town clean; the stay of pilgrims at Deoghur for more than a day was strictly prohibited; a temporary cholera hospital was erected in the dispensary compound, and an additional staff of hospital servants engaged; a set of dooly bearers to convey the sick to the hospital was entertained, and the staff of sweepers was increased; the sale of wheat flour mixed with pounded rice was prohibited; wells having bad water were closed, and cholera-pills were freely distributed. In about three weeks the epidemic subsided. In the town of Deoghur there were 120 cases, 102 of which came under the treatment of the Civil Surgeon; 40 of these recovered, 41 died, while nothing certain was known of the remaining 21.

In the jail there was only one case of cholera; the patient recovered from the disease, but he died shortly after of dysentery.

**HAZAREEBAUGH.**—Cholera first appeared sporadically in Khurruckdeah during the first week of February; during the first week of March it was reported at Punchumba, east of Khurruckdeah, i.e. north and north-east of Hazareebaugh; at Bagodhur, 28 miles north of Hazareebaugh, on the 16th March; on the 23rd at Doonrai, on the Grand Trunk Road, 13 miles east of Bagodhur; on the 30th April it showed itself at Ramgurh, 30 miles south of Hazareebaugh; on the 10th May mild cases were heard of from Murkures, ilaqua Hazareebaugh; on the 1st June it spread to Gholah, south-south-east, and to Chuttra on the 8th June. At Nowadee it was reported on the 7th and 10th June; and on the 15th at Koojoo, on the main road between Hazareebaugh and Ranchee. On the next day it appeared at Mandoo on the same road, 16 miles from Hazareebaugh. The disease is believed to have been introduced by beparees who were travelling from the south, and several of whom died on their way to Hazareebaugh.

At Hazareebaugh itself the first case was reported on the 18th June, where it continued till the 21st August. The non-resident native cases were treated at the temporary hospital at Ooknee Topo. The town was divided into two sections, and medicines were freely distributed. The total number of cases in the town was 112, with 61 deaths.

On the 1st July Echak, and on the 20th August the Burhee sub-division, were attacked. At the Ramgurh ilaqua the disease was somewhat widespread. Both Echak and Chuttra were more free from the ravages of cholera in 1870 than in the preceding year, and the rural population showed much less antipathy to the use of European medicines than before. The total deaths in the dispensary were 51.

**RANCHEE.**—Cholera prevailed from May to September. At Ranchee itself there were 204 cases and 78 deaths, and 305 deaths were reported from the interior. The sub-division of Palamow escaped altogether. At Geerban there was a local outbreak from 22nd February to 6th March. There were in all 20 cases, all of which proved fatal. Mr. Forbes, the Extra Assistant Commissioner of Palamow, writes:—"The disease is supposed to have originated in the death of a man who had recently come from a certain great fair near Allahabad, where an epidemic of a severe character was raging. As soon as the news of the appearance of cholera in the village reached me, I issued instructions to the Bhya of Oontari and the landholders in its immediate neighbourhood to abstain as much as possible from holding communication with the village, and a number of Goraites were stationed round the village in order to dissuade any persons from entering or leaving the village; and I believe the early disappearance of the disease may in a measure be attributable to these measures."

In the Ranchee Jail there were only 9 cases from 4th July to 16th August.

**PURULKA, (Maunbhoom.)**—Cholera prevailed in the western portion of the district during the second-quarter of the year, but only to a slight extent. The number of deaths or cases is not given.

**SINGHHOOM, (Chyebassa.)**—At Chyebassa itself the first case occurred on the 11th June, and the last on the 1st July. There were 14 cases with 10 deaths. The only peculiarity observed during the outbreak was that mostly children of from 4 to 10 years of age were attacked.

The following statement gives the particulars:—

DATES.	Number of cases.	THERMOMETER.			RAINFALL.		Wind.
		Maximum.	Mean.	Minimum.	New gauge.	Old gauge.	
11th June 1870	2	101	93.5	86	.....	.....	S
12th "	1	98	94.0	90	.....	.....	W
13th "	...	97	94.5	92	.....	.....	W
14th "	...	95	90.5	86	0.19	0.14	W
15th "	...	96	92.5	89	.....	.....	N
16th "	...	96	92.5	89	0.01	.....	S
17th "	1	94	90.5	87	0.25	0.42	W
18th "	1	94	92.0	90	0.07	0.06	E
19th "	...	83	82.0	81	2.35	2.19	E
20th "	2	85	83.5	82	8.00	2.78	S
21st "	2	85	83.5	82	0.03	0.02	S
22nd "	1	85	83.5	82	0.61	0.61	W
23rd "	1	87	85.5	84	.....	.....	W
24th "	...	87	85.5	84	0.03	0.01	W
25th "	1	87	86.0	85	.....	.....	W
26th "	...	90	88.0	86	0.05	0.06	S
27th "	1	95	92.0	89	0.04	0.03	S
28th "	...	95	90.5	86	0.11	0.26	S
29th "	...	95	92.0	89	.....	.....	S
30th "	...	96	92.5	89	0.69	0.08	W
1st July	1	98	91.0	90	.....	.....	W

\* The following table shows the number of deaths in each month in the district :—

July ...	31	September ...	11	November ...	0
August ...	21	October ...	0	December ...	1
Total ...					64

Besides these there were two cases of choleraic diarrhoea in the jail on the 30th April and the 2nd May. Every house or hut in the station in which a case of cholera occurred, was cleaned, *leaped*, and disinfected with sulphur and saltpetre (at public cost). Medicines were freely distributed, and the sick were visited at their homes by Dr. Manook and one of his Native Doctors.

**BHAUGULPORE.**—The epidemic of cholera broke out in the early part of the year, introduced, it is believed, by pilgrims. The first case was on the 15th February at Katoria, whence it spread to Sooltangunge, Kumargunge, Rajmara, Fatoona, &c., all on the road from Sooltangunge to Deoghur.

At Bhaugulpore itself and Banka it appeared on the 23rd February and continued till the end of that month. In the first week of March the disease showed itself at Singessur in the north of the district, and at Dugmura, further north. In March it became widespread, affecting the south much more than the north. In April it was at its height, declining in July. The following table gives the number of cases and deaths in each month :—

	Cases.	Deaths.		Cases.	Deaths.		Cases.	Deaths.
February	27	18	April	1,159	917	June	90	59
March	946	529	May	392	225	July	8	8
Total ...					2,622	1,756		

These figures are in the opinion of the Civil Surgeon only an approximation to truth.

Another importation of the disease took place later, though it was not so widespread. The first case was in the person of a woman, a visitor from the Monghyr district, where cholera was then raging. She reached Bhaugulpore on the 2nd August and died on the 7th. There were 11 persons in the household, 7 of whom were attacked and 3 died. The house was apart from others, and the people immediately around held themselves aloof; the disease did not spread amongst them. Next, a village near Sultangunge was attacked, where the disease was also imported; there were about 30 cases with 4 deaths. It is believed that by shutting themselves up the people avoided the disease. During the end of May there were 13 cases with 8 deaths at Kunjepore Bazar.

The people this year seemed to appreciate the value of European medicines, there being a general demand for them. Dr. Baillie draws attention to the fact the epidemic of cholera in 1870, as in 1869, subsided on the setting in of the east winds in both years; whilst it prevailed the wind was westerly.

**GYA.**—At Gya there were a few sporadic cases from time to time in different parts of the district, but more frequently in the months from May till August.

**SHAHABAD.**—A slight outbreak was reported from the south at Juggodishpore, but it soon ceased, as the rains set in heavily and the weather became cooler.

**SARUN.**—There was not much cholera at Sarun during the year under report. There was only 1 fatal case in the jail; while among the police force, with a strength of 600, only 1 man died.

In the fair which was held in the district there were 7 sporadic cases, with only one death, in an assemblage of about 50,000 souls.

**TIRHOOT.**—Cholera prevailed here at the beginning of the hot season, about March, increasing in severity with the scarcity of water and declining on the setting in of the rains. On the 23rd June it threatened to be widespread. In July the mortality stood at 1,229, after which it began to decline.

**CHUMPARUN.**—Nothing is mentioned of cholera by Dr. Cullen, who took charge of the station late in the year.

**MIDNAPORE.**—Cholera is endemic at Midnapore. On the 28th January it broke out near Midnapore Bazar, where 19 were attacked (of whom 8 succumbed) out of a population of 500. There were two cases in the jail about the middle of March. On the 17th it assumed an epidemic type, and about the end of that month it became widespread, more particularly amongst the poor. At Punchkoora, amongst a gang of 200 coolies, 10 died in one day.

Passing through this place the Roman Catholic Chaplain caught the disease and fell a victim. The disease was at its height from 20th March to 20th April, declining in May. There were about 500 cases, the deaths being at 50 per cent. The prisoners, however, enjoyed a striking immunity from the disease, although out of a strength of nearly 1,100 one-half were employed on extra-mural work and associated with coolies who were affected with the disease. There was no satisfactory evidence that the disease had been imported. The chief meteorological phenomena were the absence of N.W. storms and of rain, which resulted in a deficient and polluted water-supply.

The disease showed itself in the jail on the 5th, and continued till the 9th June, there being 6 cases and 4 deaths. The precautionary measures consisted in the fumigation of the wards with sulphur, the use of tar, allowing more than usual air to the prisoners, and the liberal use of lime and tamarind, with an extra quantity of salt.

BALASORE.—There was a virulent form of cholera here during February and March; but the carrying out, by the energetic Magistrate, of sanitary and hygienic measures suggested by the Civil Medical Officer, checked the progress of the disease. The deaths were as follows:—

January ...	...	12	July ...	...	39	December...	3
February ...	...	23	August ...	...	5		
March ...	...	260	November	...	65	Total	407

CUTTACK.—Cholera prevailed during June, July, and August, when it is known to occur every year, throughout the district, especially along the pilgrim route. In October, November, and December it occurred in villages by the roadside, most of the cases being return travellers from Pooree. During the last six months the deaths are reported to have been 485.

POOREE.—Cholera raged in the town from 12th February to 21st March, disappearing with the dispersion of the pilgrims. The second outbreak was on the 14th June, the first case being a *Byragee*, who was brought home insensible from the Markund tank. It next affected the jail, where there were 6 cases with 3 deaths. It then spread to the whole town and its vicinity. A week after it showed itself in the police lines, where there were 2 cases, both of which proved fatal. In October and November there were a few sporadic cases.

In the town there were 430 deaths, exclusive of 127 in the hospital.

ASSAM, (*Gowalparrah*.)—In January 44 deaths were reported, of which 39 were in the district of Gowalparrah, which seems to be more liable to cholera than other places on the opposite banks of the river, owing, it is believed, to the abundance of jute and rice cultivation and the scarcity of water-supply during the dry season.

KAMROOP, (*Sudder Station Gowhatty*.)—Cholera prevailed here from February to May. At Gowhatty itself it appeared in April, in the Rajahbazar, and spread thence to nearly every part of the station. It showed itself in the regimental lines in May; there being 10 cases with 4 deaths. Its course in the district was from west to east along the traffic route. The Civil Surgeon recommends the prohibition of steamers laden with coolies affected with cholera anchoring at the most crowded ghâts in the station.

NOWGONG.—Cholera sporadically occurred in different parts of the district; about 30 fatal cases were recorded. The precautionary measures adopted on the outbreak of the disease consisted in isolating the attacked, in burying the dejecta, and in burning the clothing and bedding of those who died.

SEEBSAUGOR.—Cholera is endemic in the district, and was prevalent in a sporadic form at several places almost all the year round. The first case occurred in March. The number of deaths was as follows:—

March ...	...	1	July ...	...	32	November...	...	5
April ...	...	1	August ...	...	5	December...	...	1
May ...	...	20	September ...	...	2			
June ...	...	25	October ...	...	3	Total ...		95

DIBROOGHUR.—The district was unusually healthy during the year under review, there being no epidemic of cholera.

*Tabular statement indicating the prevalence and fatality of cholera in the different districts during 1870.*

Name of Station or District.	Date of Appearance.	Mortality reported or believed to have occurred.
Howrah	Not noted in the report	9 deaths in December.
Serampore	March to July	75 deaths.
	Bidyabatty—from February to July	49 ditto.
	Kishtonagore—from January to April, and again in June and December	52 ditto.
	Hurripaul—February, March, April, June and September	60 ditto.
	Chunditolah—January, April, and May	27 ditto.
Hooghly	Civil station	9 ditto.
	Johanabad	9 cases.
	Bullaghur—first case, 28th March	25 ditto, 19 deaths.
	Baroonic fair at Tribani, in March	2 ditto.
	Jail—first case, 2nd September	38 ditto, with half the number of deaths.
Jessore	From July to December	64 deaths.
Mooredabad	First case, 2nd March; last case, 12th September	1,204 cases, and 566 deaths.
Furzedpore	First case in January; last case in May	1,444 deaths.
Backergunge	From December 1869 to June 1870	2,000 ditto.
Mymensingh	.....	There were only a few sporadic cases in the year.
Tipperah	January to April, and again September to December	1,120 deaths.
Noakhally	January to August, and again in November and December	779 ditto.
Chittagong	From January to December	1,210 ditto.
Rajshahye	From March to November	174 ditto.
Bograh	October	418 cases, 69 deaths.
Maldah	Throughout the year	251 deaths.
Julpigoree	.....	26 ditto.
Darjeeling	.....	One or two cases in the Terai.
Burdwan	April	62 cases, 29 deaths.
	At Culnah in August	20 deaths.
Bancoorah	.....	495 ditto.
Beerbhoom	March, April, May, and July	263 cases, 140 deaths.
Rajmehal	During March	About 200 cases.
Deoghur	Jail from 10th March to 15th April; again in September	16 cases and 10 deaths.
	Beginning of February first case	102 cases, 41 deaths. 4 cured; the rest unknown.
	In the town	120 cases.
	In the jail	1 case.
Hazareebaugh	First week of February in the district	The total deaths in the district 51.
	Town, 18th June	
	Echak, 1st July	
	Burhee sub-division, 20th August	204 cases with 78 deaths.
Ranchee	May to September	
	In the interior	
	At Geerban—first case, 22nd February; last case, 6th March	20 fatal cases.
	Jail—from 4th July to 16th August	10 cases.
Purulea	In the northern portion during the second quarter of 1870.	
Singbhoon	11th June to 1st July	14 cases and 10 deaths.
	In the district—from July to December	64 deaths.
Bhaugulpore	In the district on the 15th February	2,622 cases, 1,756 deaths.
	In the town, 23rd February; severely in April	
	Again first case, 2nd August	
	A village near Sultangunge	7 cases, 3 deaths.
	Kunjeepore Bazar, in May	30 ditto, 4 ditto.
	May to August.	13 ditto, 8 ditto.
Gya	A slight outbreak in the south of Juggodishpore.	
Shahabad	Jail	1 death.
Sarun	Police	1 ditto.
	Sporadic cases in the fair	7 cases, 1 death.
Tirhoot	In March, declining in July	1,229 deaths.
Midnapore	28th January	19 cases, 8 deaths.
	In the jail, 5th to 9th June	6 cases, 4 ditto.
Balsore	From January to March, again from July to December	407 deaths.
Cuttack	June to August; again in October, November, and December	485 ditto.
Pooree	12th February to 21st March, again 14th June	430 deaths, exclusive of 12 in the hospital.
	A few sporadic cases in October and November.	6 cases, 3 deaths.
	Jail	2 deaths.
	Police	44 ditto.
Gowalparah	Beginning of the year	
Kamroop	February to May.	
	Gowhaty in April.	
	Regimental lines in May	10 cases, 4 deaths.
Nowgong	.....	30 deaths.
Sesbaugor	March to December	95 ditto.



The general conclusions deducible from all the local reports regarding cholera during the year under review seem to be as follows :—

(a)—The spring and the cold season were the periods of greatest prevalence. As a general rule the disease declines throughout Bengal during the rains.

(b)—The districts in which the greatest mortality is reported to have occurred were Backergunge, Bhaugulpore, Tirlhoot, Chittagong, and Tipperah.

(c)—As usual, some Civil Surgeons believe the disease to have been spread by human intercommunication; whilst others strongly oppose this opinion.

(d)—On the whole the year (1870) was one of general comparative immunity from the ravages of cholera. The deaths reported amongst the pilgrims in Orissa were much lower than commonly occurs.

### SMALL-POX.

The following notes relate to the prevalence of small-pox in the different districts during 1870 :—

SERAMPORE.—The deaths from this disease registered during the year were only 16. The first case occurred at Gooteegram about the middle of March; it appears to have been brought from Calcutta. One reported outbreak of the disease was found by the Civil Surgeon to be a mild form of chicken-pox.

HOOGLY.—The number of deaths throughout the district is reported to have been only 25. The disease first appeared in April, at Mircala, and it was traced to an infected individual who had come from Calcutta.

BERHAMPORE.—No epidemic reported.

FURREEDPORE.—In the month of May a man who had just returned from Dacca was seized with small-pox in the bazaar near the sudder thannah; his mother, who was unprotected, was also soon seized. The spread of the disease was prevented by timely and active measures.

DACCA.—The epidemic of small-pox which prevailed in Dacca early in 1870, and the special measures which were adopted to arrest its progress, were specially reported to Government.

MYMENSING.—A few sporadic cases occurred, but no epidemic.

CACHAR.—Few or no cases of small-pox came under notice during the year under review.

TIPPERAH.—Eighty-one deaths are reported in the district from January to April. Five cases occurred in the jail in March. It was introduced by one of a gang of prisoners engaged in road-making in a part of the town where a few cases prevailed, and where he no doubt contracted the disease. Although every precaution was taken to isolate this case, 4 more occurred within 12 days, but its further spread was prevented by the prompt measures adopted.

From January to May there were several outbreaks of small-pox, caused, it is supposed, by the inoculators; 544 deaths are reported from this cause, including those from inoculation.

RAJSHAHYE.—Small-pox prevailed to a great extent from February to June, which was in some instances traceable to inoculation; but the mortality was not great.

BOGRAH.—There was no epidemic of small-pox at Bograh.

MALDAH.—The disease is reported to have prevailed throughout the year, and in every part of the district. November was the only month during which no deaths were reported. Inoculators are believed to have brought the disease into the sudder station about the beginning of January. In February it appeared in the north-western portions of the district; during March it was at Nabobgunj and the places surrounding. In April it reached the unhealthy parts of the district to the north,—Ghazole and Khurba. During May and June it was confined to English Bazar, Gomashtopore, and Maldah, i.e. the central thannahs of the district. From July the disease began to abate, but it did not completely disappear till November.

RUNGPORE.—About June the police reported a severe outbreak of epidemic small-pox; 98 deaths were returned. Dr. Lidderdale, the Superintendent of Vaccination, Darjeeling circle, visited the district, and was of opinion that the returns were incorrect and exaggerated, and Dr. Bowser is of the same opinion. With the setting in of the rains the number of cases steadily decreased.

**DARJEELING.**—Two slight outbreaks occurred, one in the Terai and the other in the Bhutan direction, some thirty miles eastward of Darjeeling, at a place called Kallimpoong. A case of confluent small-pox occurred in the month of April in the station itself; the patient was a new arrival from the plains. He was carefully isolated, and the disease did not spread. Small-pox is said usually to be introduced into this district by inoculation, either from Nepal or Purneah.

**BURDWAN.**—A few cases were reported from villages in the interior, but there was no regular epidemic.

**MAUNBHOOM.**—A few cases were reported here and there in the district, but nothing like an epidemic prevailed. Natives are apt to report measles and chicken-pox under the heads *bussunth* and *mātha*.

**SINGHHOOM.**—Twenty-two deaths were reported in the district from small-pox during July, 7 in August, 9 in September, 2 in October, 3 in November, and 5 in December; total 48.

The civil station was free from the disease.

An epidemic of measles prevailed in all parts of the district from January to April; as usual, it was at first reported to be small-pox. It attacked adults and children indiscriminately.

**BHAUGULPORE.**—There was no regular epidemic. Around Colgong and Goja 30 or 40 cases were reported in March and April, but it appears to have been a very mild variety of the disease. Dr. Baillie saw six persons in one house who had had the disease mildly.

**GYA.**—No epidemic occurred; only a few sporadic cases in different parts of the district. According to Native belief, every fourth or fifth year the disease breaks out severely.

**SHAHABAD.**—There were a few sporadic cases of small-pox, which were mild in their nature and limited in extent.

**SARUN.**—Small-pox was not so fatal in 1870 as it usually is.

**TIRHOOT.**—Small-pox prevailed during the year, but the epidemic was not a severe one. The mortality has not been reported.

**MIDNAPORE.**—There was not much small-pox in the district.

**BALASORE.**—Small-pox was propagated rather largely by the inoculators, but the casualties were not great.

**CUTTACK.**—Small-pox occurred in isolated places, chiefly owing to careless inoculation. The masses are greatly unprotected, especially young children.

**GOWALPARAH.**—Small-pox has not been very prevalent during the year under report; in April there was an outbreak, caused, it is supposed, by inoculation at Joghigopa and its vicinity.

**KAMROOP.**—Small-pox in a mild form prevailed from January to May.

**DIBROOGHUG.**—Outbreaks of small-pox are of almost annual occurrence, but seldom severe. The people regard the disease with very little dread, looking upon it much in the same light as measles or other infantile disorders.

## MALARIOUS FEVERS.

THE following observations furnish a condensed record regarding the prevalence of endemic malarious fever in the different districts during 1870 :—

**SERAMPORE.**—Sickness and mortality were not so great from this cause as in preceding years. The villages of Jangeepara, Rancee Bazar, Madhopore, Rajbulhāt, Autpore, and several others in that locality, as well as some in thannah Hurripaul, suffered most. Dr. Barker confirms the opinion that the prevailing fever is of malarious character, "differing in no material point from the fevers seen in other miasmatic districts." The chief causes are believed to be "swamps, undrained villages, low, crowded houses, poor diet, and bad water." Sewage is frequently seen flowing into village tanks. The soil is described as sandy to a depth of ten or twelve feet, after which a layer of almost impervious black clay is met with. Medical aid was from time to time afforded to the fever-stricken, and medicines were freely distributed.

**JESSORE.**—The district was particularly healthy, except in a small tract of country in the Khoolnah sub-division, which lies very low. Here the disease prevailed severely during July, August, September, and October. Thannah Doomriah and the outpost Tallah suffered most. The majority of cases resulted in enlarged spleen, with great emaciation and extreme cachexia, some terminating in diarrhoea, dysentery, and anasarca. Native Doctors with medicines were deputed to the places most severely afflicted. The excessive mortality lasted until December.

**FURREEDPORE** enjoyed a remarkable immunity from fevers, the Ganges having been very high.

**BACKERGUNGE.**—Fever was common in January, and also from August to November, but the type was not severe, and it yielded readily to febrifuges.

**CACHAR.**—Fever, both of intermittent and remittent type, occurred in the district. The former (originating from the dried up and foul stagnant pools, malaria, &c., resulting from a long continued drought) was slight and amenable to treatment, but it was very general throughout the district during April and May, causing but few deaths; the latter was frequently troublesome owing to cerebral and pulmonic complications.

**CHITTAGONG.**—Fever was much more prevalent and fatal than in the preceding years, two-thirds of the total mortality being attributed to this cause, though the number is believed to be somewhat exaggerated.

**BURDWAN.**—At the end of April, which was noted only for its unusual dryness and the extreme lowness of the tanks, endemic fever appeared for the first time in Gopal Bera, twenty miles north-west of Burdwan. There were 80 cases with 45 deaths in a population of 250 persons. In the town and suburbs of Burdwan itself it was milder than in 1869, still the mortality was very high, especially after the setting in of the rains in August. The relief afforded by the Native Doctor under the municipality being inadequate, the local authorities approved of the suggestions of the Civil Surgeon, who established dispensaries at the places most severely affected, and deputed another Native Doctor to visit those who were incapable of walking to the dispensaries. The results were very satisfactory.

In November a severe "new" fever appeared at Kanchunnuggur (which was comparatively free in 1869); the dispensary at Itchla Bazar was therefore removed there with an additional Native Doctor.

**Food Relief.**—In October the inhabitants of several villages near the Ticker Haut required food as well as medical relief, and to meet this emergency a food depôt was established on the 26th close to the dispensary, the operation of which lasted till 5th February 1871; 5,807 persons were fed. The food consisted of (1) soup with rice and other vegetables; (2) milk, rice, and sugar. Another depôt was opened at Kanchunnuggur on the 12th December, the working of which lasted till the 25th January 1871; 1,039 were fed here. With the view to afford medical aid to affected localities in the interior where chronic endemic fever was prevalent, a dispensary was opened at Selimabad and another at Boolchandpore, thannah Rynah. The following statement shows the results:—

NAMES OF DISPENSARIES.	When established.	Aggregate No. of patients who attended.	Number of visits paid by Native Doctor.	New cases treated.	Cured or relieved.	Known to have died.
Selimabad ... ..	October 8th ...	7,719	198	2,552	1,156	7
Boolchandpore ... ..	November 8th ...	5,103	711	660	386	0
	Total ...	12,822	849	3,212	1,542	7

**BANCOORAH.**—Fever caused as many as 65·77 per cent. of the total number of deaths, about 7·10 per mille of the entire population. Of these 61·79 per cent. were males and 38·21 per cent. females. The disease was very prevalent at Kotulpore (*vide* chart No. VI annexed), which receives a great deal of drainage, being much lower than surrounding places. It lies in juxta-position with Jehanabad in the Hooghly district. How far the disease was influenced by the existing local insanitary causes, such as defiled tanks and objectionable pools and holes, with which Bancorah abounds, or by the meteorological conditions, Dr. Vincent Richards does not state, but points to the fact that the soil of Kotulpore and Bishenpore, where fever was most prevalent, is quite of a different nature.

The accompanying chart No. VI shews the mortality from fevers.

**MALDAH.**—In this district the largest number of deaths occurred within thannahs Gazole (a notoriously unhealthy place) and English Bazar (the most populous part of the district). Rigid starvation is a rule among the people in the treatment of fevers.

**BEERBHOOM.**—Fever prevailed chiefly at the following police sub-divisions:—Shakorlypore, Kushib, Tubpore, and Burowan, all of which are situated to the east and south-east of Soory, the sudder station. The total number of deaths reported from September to December, inclusive, was 1,708, whilst during the same period the deaths from all other diseases amounted to 340.

**BHAUGULPORE.**—Fever was very widely diffused after the floods, and in some parts of the district they were very fatal, chiefly to the north, along the banks of the Dimrinullah and near Goja, where there is much lowland and swamp.

**GYA.**—In this district fever is for the most part a mild and tractable disease, and less frequent than in many other parts of the country. As usual, intermittents prevail chiefly during the cold season, remittents during and after the rains, whilst the continued type is observed chiefly during the hot months and early part of the rains.

**SHAHABAD.**—Fever of a severe intermittent and remittent type, with spleen and liver affections, prevailed throughout the district, more especially in the south, bordering the foot of the hills. The deaths were reported to have been 1,109 out of a total mortality of 1,238; but these entries, the Civil Surgeon thinks, are inaccurate, many deaths from other causes being through carelessness and ignorance on the part of the primary agents put down to fever.

**SARUN.**—Fever, mostly of an intermittent type, prevailed to a considerable degree in the district. At the Sonapore Fair there were 31 cases admitted, all of which recovered.

**BALASORE.**—Fever, generally of an intermittent type, occur during September, October, and November, and again in February and March, frequently resulting in enlargement of the spleen and passive congestion of the lungs.

**CUTTACK.**—There was no unusual prevalence of fever in any part of the district. The deaths from this cause during the second half of the year under report numbered 2,459, out of a total mortality of 6,260 from all causes. This high rate is possibly attributable to inaccurate entries.

**POOREE.**—It is reported that fever prevailed to a great degree in the district from malaria, and also owing to the people keeping night and day watches over the paddy crops. During the rains fever of the quotidian type showed itself, continuing till January.

**DIBROOGHUR.**—Remittent fever caused great mortality in former years, but it has been steadily declining; as also the congestive jungle fever of Assam, owing probably to the clearance of jungle, the extension of cultivation, and the opening out of the country generally. Continued fevers also have of late been rare.

## OTHER DISEASES.

**BACKERGUNGE.**—The number of cases of bowel complaints both in the town and in the jail was greatly less in this than in past years.

**DACCA.**—Diphtheria is reported for the first time to have occurred in Mozitho thannah, Sreenuggur, and it spread to Jainsher, &c., all within about four miles of the dispensary. There were altogether 209 cases, the number of deaths being very small. On personal inspection the cases were found by the Civil Surgeon to be true diphtheria, with membranous exudations.

**CACHAR.**—Diarrhoea and dysentery are the prevailing diseases in Cachar; gonorrhoea and syphilis are also common; splenitis is very prevalent, as well as worms. At Banakandy cases of goitre are commonly found, chiefly among women.

**CHITTAGONG.**—In the latter part of the year an epidemic of mumps passed over the district, causing a few deaths.

**RAJSHAHYE.**—In the Nattore sub-division numbers of cases of sloughing ulcer of the cheeks, lips, and lower extremities (due to a highly anæmic state following long-continued ague and spleen disease) were prevalent.

From August to November there was a higher rate of mortality from prevailing diseases than in the corresponding period of 1869. In the jail there were 129 cases of dysentery, with a death-rate of 14 per cent. of treated; 77 cases of diarrhoea, with deaths at 6·4 per cent.; and 151 cases of fever, with a death-rate of 1·9 per cent.

**SHAHABAD.**—Bowel complaints, enlargement of the spleen and liver, syphilitic and rheumatic affections, eye diseases, inflammation of the internal ear, attended with purulent discharges, and skin diseases (generated, as usual, by malaria, impure air and water, and uncleanly habits), were common during the year under review.

**BALASORE.**—Neuralgia and rheumatism were common during the wet months; syphilis in an aggravated form is unusually rife; elephantiasis (among both sexes, and in the lower extremities more frequently than in the upper,) is a very common ailment, caused, it is believed, by a faulty water-supply.

**POOREE.**—Bowel complaints were very prevalent, caused, it is believed, by bad food, impure water, damp and ill-ventilated houses, and exposure; elephantiasis and hydrocele are very common. Ague, resulting from malaria, arising from decomposed vegetable substances and other refuse matter, is very prevalent.

**DIBROOGHUR.**—Diarrhoea is very common during April and May; dysentery of a low passive type is also very general, causing the bulk of the mortality. It occurs generally as a sequel to fever, and has a marked malarial character. Hepatitis and other diseases of the liver are uncommon. Venereal diseases were formerly unknown, but they are now being imported with the women laborers, who are as a rule affected with these diseases. The Civil Surgeon recommends a careful examination of the female laborers before they leave Kooshtea or Calcutta.

### MORTUARY REGISTRATION.

**SERAMPORE.**—Dr. Barker suggests that the Superintendent of Police be allowed to impose a small fine on any chowkeydar who neglects to report a death, the sum thus levied being made over to the person who should bring the fact to notice.

**HOOGLY.**—The total number of deaths reported by the police during the year under report are summed up as follows:—Fever and spleen cases, 3,088; bowel complaints, 412; cholera, 209; small-pox, 25; other causes, 773; total 4,507. If reliance can be placed in these figures, the year 1870 must be regarded as a comparatively healthy one.

**JESSORE.**—The Civil Surgeon, in remarking on the inaccuracy of the death returns, states that in the case of suicides alone he had himself to examine considerably more than 17 cases which was the total number returned for the whole district. Besides the cases seen by Dr. Skipton, a good many more had been examined by sub-divisional Native Doctors. Great inaccuracy probably occurs in other parts of the returns. The total mortality recorded for the six months was 8,848. Assuming the then estimated population to be 1,276,196, the deaths have been only .693 per cent. for the half-year, or about 13 per thousand per annum, which is in all probability much too low a figure for such a district as Jessore. Dr. Skipton, recommends a paid agency for the collection of mortuary statistics. There can be no doubt that this would be advantageous, but it is clear that the present financial condition of the country will not admit of such a system.

**BERHAMPORE.**—The present population of Berhampore is returned at 27,275 and that of the district of Moorshedabad at 1,164,041. It is, however, very doubtful if these figures are even approximately correct.

**FURREEDPORE.**—Dr. Bholanath Bose has submitted a sketch map displaying the mortality which occurred in the different parts of the district. It is annexed, as presenting very clearly the data collected.





**BACKERGUNGE.**—Dr. C. Bensley has carefully pointed out the chief defects in the working of the present system of collecting mortuary statistics. He draws attention to the fact that in August 357 females were said to have died of fever and only 162 males. The chowkeydars, Dr. Bensley thinks, seem to consider it right to report mortality chiefly among the very aged, so much so that one might almost suppose youthful mortality was a thing unknown.

**MYMENSING.**—The Civil Surgeon considers the statistics worthless, and the Magistrate also believes them to be quite unreliable.

**CACHAR.**—The Civil Surgeon does not consider the mortuary statistics recorded by the tehsil mohurirs, on the strength of the information received through the village chowkeydars, to be at all reliable. It cannot be complete, as the chowkeydar does not travel beyond the neighbourhood and the natives are slow to give correct information. The Civil Surgeon recommends the substitution of the village headman for the police chowkeydar, and the thannahwallah for the tehsil mohurirs.

**TIPPERAH.**—Mr. Stork places no reliance in the accuracy of the returns.

**NOAKHOLLY.**—Raboo Uday Chund Dutt points out that the registered number of deaths from bowel complaints is in all probability too low, amounting as it does to only about 1·5 per cent. of the total mortality. Probably all bowel complaints attended with or following fevers are entered under the head of fevers.

• **CHITTAGONG.**—The following is a comparative statement for the town for the past two years:—

MONTHS.	1869.					1870.					Total.
	Cholera.	Small-pox.	Fever.	Other cases.	Total.	Cholera.	Small-pox.	Fever.	Accidents.	Other cases.	
January ... ..	521	70	509	278	1,378	19	56	552	...	153	780
February ... ..	331	47	328	186	892	47	158	558	7	145	915
March ... ..	320	134	257	205	916	185	102	533	4	104	964
April ... ..	760	128	231	133	1,252	378	95	399	4	125	1,001
May ... ..	427	93	253	143	916	215	85	438	6	126	870
June ... ..	269	52	268	82	671	140	16	446	11	101	714
July ... ..	145	29	290	151	615	103	16	636	3	119	877
August ... ..	99	27	293	123	542	69	3	544	7	109	730
September ... ..	158	18	242	125	543	4	1	491	7	86	590
October ... ..	97	7	267	117	481	9	7	618	3	94	741
November ... ..	21	21	557	138	737	11	...	609	5	70	695
December ... ..	74	36	633	148	829	31	5	727	3	92	858
Total ... ..	3,162	660	4,128	1,829	9,779	1,210	544	6,561	60	1,360	9,735

This gives a mortality of 12 per 1,000 of population, but the Civil Surgeon has reason to think that this does not include infantile mortality.

**RAJSHAHYE.**—Dr. Bensley believes the mortuary statistics to be very faulty or the population over estimated. He inclines to the belief that it is rather the former than the latter, in which case the primary agents, the village chowkeydars, are responsible.

**MALDAH.**—The total number of deaths reported to have occurred in this district during the year under report was 2,917, of which about three-fourths, or 71·27 per cent., resulted from fevers, 9·29 per cent. from cholera, 5·40 per cent. from small-pox, 3·22 per cent. from other diseases, 3·80 from bowel complaints, and 3·60 from injuries.

The district is said to be 1,288 square miles in extent, and to have a population of 307,557 souls. According to these data, the mortuary returns show a mortality of only 2½ deaths for every square mile, and 9·48 deaths for every 1,000 of the population.

In the jail, with a total population of 611 prisoners and a daily average strength of 61·39, the number of sick during the year was 159 with only one death. The general health of the prisoners is reported as having been remarkably good, and the number of sick was much below the usual yearly average.

The average strength of the police force in the district was 317. The total number of sick during the year was 234.



**JULPIGOREE.**—Dr. J. H. Thornton shows how little reliance can as yet be placed on the accuracy of the statistics collected in this district. In five months only 691 deaths were registered in a population of 273,000 souls. In Fakeergunge, with a population of 34,040, only 46 deaths were reported in five months, or little more than 3 per mille, and the same number were said to have occurred at Silligoree out of a population exceeding 29,000. In Fallacotta, with a population of 20,614, only two deaths were reported during the month of November; and in Boda, out of a population of 107,792 souls, only eleven deaths were registered during November; but 87 were reported the following month, although there was no unusual sickness among the people. As Dr. Thornton observes, no deductions of any kind can safely be drawn from such returns; yet it is to be hoped that the people, becoming gradually accustomed to the system of mortuary registration, may in time voluntarily report the occurrence of deaths.

**DARJEELING.**—Dr. T. Mathew thinks the returns give a fair idea of the number of people who die, but the diseases and ages are given haphazard. On the whole the system works clumsily and irregularly. A clerk is required for the translation of the weekly vernacular sheets sent in by the police. A system of general supervision is also required; at present there is no check whatever.

**BANCOORAH.**—The total mortality was 4,734, 60·71 per cent. being amongst males and 39·29 per cent. amongst females.

The following statement gives the deaths according to denominations:—

Denomination.	Ratio per cent.	Denomination.	Ratio per cent.
Christians ... ..	0·04	Hindooes ... ..	91·63
Mahomedans ... ..	4·99	Other classes ... ..	0·34

The following is according to ages:—

AGES.	Number.	Ratio per cent.	REMARKS.
Born dead... ..	10	0·21	It appears that the majority of deaths occurred between 20 and 30 years. The ages after 50 years have probably not been reported correctly, as it is very unlikely that 11·62 per cent. died over 50 years and as many as 14·30 per cent. above 60.
Not exceeding 1 year ... ..	108	2·28	
Ditto 6 years ... ..	248	5·24	
Ditto 12 „ ... ..	393	8·30	
Ditto 20 „ ... ..	673	14·21	
Ditto 30 „ ... ..	762	16·09	
Ditto 40 „ ... ..	756	15·97	
Ditto 50 „ ... ..	557	11·78	
Ditto 60 „ ... ..	550	11·62	
Exceeding 60 „ ... ..	677	14·30	

To facilitate the comparison of the most prominent causes of deaths in different places, the Civil Surgeon has divided the district as follows:—

North... { Ranecgunge. Niamutpore. Roghunathpore. Gourandeehee.	South... { Bishenpore. Ondah. Kotulpore.	East ... { Sonamooke. Kanksa.	West ... { Bancoorah. Chatriah. Gungajolghatty.
--	--	----------------------------------	---

The following table shows the ratio per cent. of deaths from different causes in the above section of the district:—

CAUSES OF DEATHS.	North.	South.	East.	West.
Cholera ... ..	6·21	7·75	18·89	16·85
Small-pox ... ..	0·09	.....	.....	.....
Fever... ..	65·74	76·85	61·32	50·59
Bowel complaints ... ..	12·22	5·75	8·50	16·76
Injuries ... ..	2·31	3·18	1·80	1·27
All other causes ... ..	13·43	6·74	14·49	14·52

The following is a comparative statement giving the death-rate per mille of the entire population of the district and the sudder station:—

DISEASE.	District.	Town.	REMARKS.
Cholera ... ..	1.13	2.84	{ From this it might appear that the sudder station is unhealthier than the district, which is not the case; perhaps the population is over-rated, or all deaths are not reported, or both.
Fever ... ..	7.10	5.03	
Bowel complaint ... ..	1.09	2.70	
Injuries ... ..	0.25	0.13	
All other causes ... ..	1.22	2.73	
Total ...	10.80	13.42	

**BEERBHOOM.**—Dr. Shéridan believes that many deaths are reported from fever, which really result from preliminary or abdominal disease, and he thinks the deaths from fever after the age of 60 are due simply to old age and natural decay.

**MAUNBHOOM.**—Mr. Wilson, the Civil Medical Officer, considers the returns now received to be untrustworthy. He states it as the opinion of the District Superintendent of Police that until the new Chowkeydaree Act is brought into force, the agency for mortuary registration cannot be improved.

**SINGHBHOOM.**—Dr. Manook shows that the registration of deaths, as at present carried out, is quite worthless and unreliable. The mortality in the police force was 25.9 per 1000, in the jail 35.67, in Chyebassa it was reported to be 17.85, and the ratio for the whole district was only 11.085. Dr. Manook drily observes—"If such figures are at all correct, reform must be regarded as quite unnecessary in a district where the death-rate is shown to be so low, and perhaps sanitation might increase the ratio of mortality." The agency employed for registration varies in different parts of the district:—Pergunnah Dholbhoom and part of pergunnah Porahaut is under the immediate jurisdiction of the regular police. In that portion of the district which is known as "the Colehan," the head of the *Pir*, who is called the *minky*, and his immediate subordinate, the *moonla*, or head of the village, constitute the agency. Again, the regular police has no jurisdiction in the two pergunnahs of Seraikela and Kursowah, which are administered by the chiefs of these places. From the circles Kera and Annudpore the returns are submitted by the thakoors of the respective places. The returns from the different circles are manifestly incorrect. From Kursowah a mortality is reported of 0.775 per mille. From the Colehan, in circle Lalgurh, with an estimated population of 5,648, only 18 deaths were reported in 6 months.

**GYA.**—Dr. Russell remarks that although the submission of mortuary statistics is clearly a measure in the right direction, the results as yet do not approach accuracy. It is too much to expect totally illiterate men to form differential diagnoses and to report how many die from fever, cholera, diarrhoea, and dysentery respectively. Nothing like accuracy can be expected until a careful census has been taken. Dr. Russell suggests that the returns submitted by chowkeydars should regularly be checked by putwaris and zemindars, who might be made to examine the figures and sign their names in proof of the accuracy of the entries.

**SHAHABAD.**—The statistics are not considered reliable, the rate of mortality shown being so low as to defy credence. The causes of deaths are seldom correctly entered, too many being placed to the credit of fevers and too few to bowel complaints. To the latter cause are due as many deaths as to the former; this fact is established by the three dispensary returns, in which out of 15,872 patients treated there were 2,298 cases of fever and 2,179 of bowel complaints. The returns for the last six months of 1870 show 3,683 deaths in an estimated population of 1,602,274, giving an average of 2.25 per 1,000 of population, a result unrivalled elsewhere in the world. In the jail, with all the excellent sanitary arrangements, the death-rate was 27.10 per 1,000, sadly contrasting with that of the general civil population. The Civil Surgeon suggests making the "maliks" or headmen of *mohullas* responsible.

**SARUN.**—The Civil Surgeon does not consider the mortuary statistics accurate; he believes the mortality to be under-rated.

**MIDNAPORE.**—The Civil Surgeon does not consider the mortuary statistics to be of much value. He thinks the aid of the landholders might be sought with advantage. Were a check book printed in Bengalee and furnished to the zemindars, who would be required to fill up the prescribed columns and forward it to the Civil Surgeon, the registration work might be more correct than at present.

**BALASORE.**—The Civil Surgeon thinks the rate of mortality, as given by the police, to be tolerably correct, but not the rate of sickness, the reasons being—(1) the information collected by the primary agency is very crude, being collected gratuitously and therefore perfunctorily; (2) the want of a reliable census.

In the jail the average death-rate from 1865 to 1870, excepting the famine year of 1866, was 4·6 per 1,000, the rate of sickness being 236 per 1,000 of population.

**CUTTACK.**—There was a high rate of infantile mortality, there being 1,130 deaths among children under one year and 753 among those between 1 and 6, out of a total of 6,260 from all causes, giving an average of 284 per 1,000 of children under 6 years. This high rate might possibly be accounted for from the fact of the children being fed with rice when only a few months old,—a practice resulting in cachexia with swollen belly, emaciation, and death. The Civil Surgeon believes the figures in these returns to be near the truth, as also the ages, but the causes of deaths are considered scarcely correct.

**POOREE.**—The Civil Surgeon believes the statistics to be tolerably reliable.

**GOWALPARRAIL.**—The total mortality during the year in the whole district amounted to 2,631 out of an estimated population of 294,451, giving a ratio of 8·93 per 1,000. The Civil Surgeon believes that even one-tenth of the deaths are not duly registered at all, either owing to the long distances between the several registering stations or (as in the case of sudden deaths) from dread lest the bodies should be sent to the sudder station for examination. The Civil Surgeon suggests the issue of a circular intimating that neglect on the part of *munduls* or *patgeerces* to register and report deaths must be visited by fine.

**SEENSAUGOR.**—The total number of deaths registered during the year was 1,966 in a population of 214,610, the ratio being 9·16 per 1,000 per annum. Out of this total, 95 were due to cholera, 38 to small-pox, 1,173 to fever, 537 to bowel complaints, 5 to wounds and accidents, 5 to snake-bites, and 113 to other causes. These figures the Civil Surgeon considers to be below the mark, chiefly owing to the population of the different registering stations not being as yet ascertained; without a reliable census and a paid establishment exclusively for the purpose, it is futile to hope for better results.

**DIBROOGHUR.**—The only correct statistics are those of the cantonment, the population of which is 1,574, of which 134 were infants (78 males and 56 females). There were altogether 28 deaths, of which 2 were male and 8 female infants. Amongst laborers in tea estates there were 522 infants, of whom 61 died. The statistics relating to the civil population are very inaccurate, but to render the system complete would entail an expenditure which it would be futile to propose at present.

## METEOROLOGICAL OBSERVATIONS FOR THE YEAR 1870.

### HOWRAH.

MONTHS.	Approximate mean temperature.	Rainfall in inches.	REMARKS.
January ... ..	70	1·42	It will be observed that the rainfall was much below the average; but it was so equally distributed as to time that it proved sufficient for all agricultural purposes.
February ... ..	73	.....	
March ... ..	80	.....	
April ... ..	82	2·95	
May ... ..	87	1·49	
June ... ..	84	10·46	
July ... ..	83	10·99	
August ... ..	82	13·76	
September ... ..	83	7·69	
October ... ..	81	3·63	
November ... ..	71	2·04	
December ... ..	68	.....	
Total ... ..	.....	54·48	

## SERAMPORE.

MONTHS.	TEMPERATURE.		Rainfall.	REMARKS.
	Maximum.	Minimum.		
January ... ..	67	75	30	N
February ... ..	71	82	.....	N and S
March ... ..	77	87	50	W
April ... ..	81	89	457	E and SE
May ... ..	82	93	130	S and SW
June ... ..	84	93	864	S
July ... ..	84	87	950	S
August ... ..	84	87	1009	S and SE
September ... ..	83	85	550	S
October ... ..	84	86	264	SE and N
November ... ..	75	79	472	N
December ... ..	64	72	.....	N
Total ... ..	.....	.....	4776	

## HOOGHLY.

MONTHS.	THERMOMETER.			Rain.	Prevailing wind.
	Maximum.	Mean.	Minimum.		
January ... ..	78	69	60	.....	N
February ... ..	85	77.25	69.50	.....	S
March ... ..	92	83.50	75	30	SE
April ... ..	92	83.75	75.50	371	S
May ... ..	99	90.50	82	292	S
June ... ..	95	87	79	717	S
July ... ..	90	81.50	79	1686	S
August ... ..	89	84	79	1230	S
September ... ..	90	84.50	79	1024	S
October ... ..	98	87	76	130	N
November ... ..	74	69.50	65	140	N
December ... ..	89	76	63	.....	N

At Kishnagar the following meteorological data were recorded : maximum temperature 97° ; minimum 57° ; medium 77° ; rainfall 43.78 inches, which is very much below the average.

## JESSORE.

MONTHS.	Average temperature of dry bulb.	Rainfall in inches.	BAROMETRICAL READINGS (REDUCED).			HYGROMETRICAL READINGS.				REMARKS.
			Maximum.	Minimum.	Medium.	Depression of wet bulb thermometer.	Elastic force of vapour.	Temperature of dew point.	Scale-100 humidity.	
January ... ..	64.9	2.02	29.011	29.860	29.085	7.1	52.1	38.0	63	The rice crops were better than the average of the past 5 or 6 years. The price of the ordinary coarse grain consumed by the villagers was Rs. 1-14 per maund at the end of the year. In 1869 it was Rs. 2-6 per maund.
February ... ..	71.2	.....	29.094	29.743	29.408	10.2	52.8	39.9	53	
March ... ..	79.7	2.96	29.913	29.091	29.602	12.6	58.2	48.5	40	
April ... ..	83.4	0.098	29.648	29.050	29.746	10.2	66.0	63.9	60	
May ... ..	86.0	0.931	29.733	29.470	29.601	7.5	74.0	85.6	70	
June ... ..	83.0	16.455	29.670	29.378	29.524	4.4	76.4	90.8	81	
July ... ..	83	13.385	29.635	29.360	29.508	3.1	78.1	90.1	87	
August ... ..	82.3	17.167	29.740	29.428	29.584	2.7	77.7	94.8	89	
September ... ..	82.3	8.463	29.813	29.547	29.680	3.2	77.4	93.9	87	
October ... ..	81.0	6.047	29.691	29.723	29.807	3.9	76.0	89.6	86	
November ... ..	73.1	0.099	30.055	29.761	29.818	3.9	66.3	64.5	80	
December ... ..	63.5	.....	30.081	29.848	29.964	5.7	52.5	39.5	69	

BERHAMPORE.

( 38 )

MONTHS.	BAROMETER.				THERMOMETER.				HUMIDITY.				RAINFALL.		REMARKS.
	Mean of				Mean of night.	Mean of daily.	Mean of night.	Mean of daily.	Mean of				Inches.	Number of days rain.	
	4 H.	10 H.	16 H.	22 H.					4 H.	10 H.	16 H.	22 H.			
1. 1st to 16th January	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
2. 16th to 31st January	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
3. 1st to 16th February	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
4. 16th to 28th February	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
5. 1st to 16th March	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
6. 16th to 31st March	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
7. 1st to 16th April	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
8. 16th to 30th April	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
9. 1st to 16th May	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
10. 16th to 31st May	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
11. 1st to 16th June	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
12. 16th to 30th June	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
13. 1st to 16th July	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
14. 16th to 31st July	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
15. 1st to 16th August	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
16. 16th to 31st August	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
17. 1st to 16th September	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
18. 16th to 30th September	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
19. 1st to 16th October	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
20. 16th to 31st October	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
21. 1st to 16th November	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
22. 16th to 30th November	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
23. 1st to 16th December	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
24. 16th to 31st December	29.875	29.888	29.931	29.897	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	29.876	...
Total sum	706.922	712.791	714.476	711.265	709.245	709.245	709.245	709.245	709.245	709.245	709.245	709.245	709.245	709.245	...
Mean for 12 months	29.855	29.850	29.708	29.683	29.683	29.683	29.683	29.683	29.683	29.683	29.683	29.683	29.683	29.683	...

25th, first day.

These observations were made by Baboo Mohendra Nath Roy, the meteorological reporter of Berhampore.

29th was the last day.

Mean temperature of the year=90°

The highest daily range on 30th March=85°

The lowest ditto on 28th February=49°

Mean annual range=19°

The highest temperature noted was on the 4th May=113°

The lowest ditto on the 1st January=43°

May was the hottest month with a mean temperature of 91°

The mean maximum humidity was in August=83°

Ditto minimum ditto in March=43°

Ditto annual ditto ditto=67°

The total rainfall was less by 10 inches than the last year.

## FURREEDPORE.

MONTHS.	Strength.	Remaining sick per cent. of strength.	Daily average number of sick.	IN SUN'S RAYS.		10 A.M.		4 P.M.		10 P.M.		Means in sun's rays.	Total rain.	Number of days rainfall.	REMARKS.
				Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.				
January ...	300.83	2.32	6.67	60.00	58.16	63.93	63.70	68.77	68.61	66.58	61.25	83.77	...	...	N
February ...	293.53	2.38	6.60	66.17	63.17	74.23	66.80	80.82	69.21	71.07	66.78	100.00	...	...	N, S, NW, SW
March ...	272.19	1.88	7.64	74.19	72.23	79.80	71.03	80.00	71.67	70.00	69.00	99.87	1.6	2	N, NW, SW, NW
April ...	286.46	2.09	7.06	80.76	78.44	83.50	77.53	87.86	78.86	81.13	75.78	102.18	4.8	8	N, SSW, NW, SE
May ...	275.18	2.90	7.00	82.67	80.77	87.37	82.61	91.25	83.77	83.44	81.45	101.04	7.5	9	SW
June ...	279.60	1.48	10.46	81.66	79.90	85.60	85.36	87.26	83.26	83.16	81.16	96.40	8.6	15	SSE
July ...	313.20	1.91	8.35	82.09	80.00	85.54	83.16	86.03	83.25	84.23	82.16	88.38	12.44	15	S
August ...	340.01	2.93	6.88	82.51	80.58	84.64	82.70	85.39	83.19	83.64	82.10	91.00	23.91	18	S
September ...	316.04	1.18	9.33	82.04	80.40	85.33	83.40	85.80	83.06	83.96	81.53	97.00	11.48	14	SSE
October ...	333.45	2.24	7.00	78.55	76.45	85.00	82.69	80.00	83.03	82.61	80.67	90.70	3.82	7	SSE
November ...	337.10	2.60	9.04	73.33	71.10	79.00	74.43	80.20	70.80	75.56	73.53	95.03	...	...	N, S
December ...	357.25	0.88	7.93	64.48	62.35	70.61	65.19	72.74	66.38	66.19	63.93	83.16	...	...	N
Total ...	3,776.46	.....	62.68	607.37	583.03	660.00	614.76	608.14	619.00	638.02	608.39	1,145.68	76.15	88	
Average ...	314.70	.....	7.71	76.00	73.63	80.80	78.23	83.17	78.00	78.21	74.86	93.47	0.97	7.9	

The following interesting remarks on the meteorology of the year have been submitted by Dr. Bholanath Bose :—

The cold weather set in somewhat early in October 1869 and passed off abruptly in the beginning of February following. In 1870 it did not set in regularly till the middle of November.

The mean annual temperature during the past two years at the several periods of observation, both in shade and sun's rays, is shown below, from which it will be seen that the heat during the last was uniformly higher than during the preceding year :—

YEARS.	At sunrise.	10 A.M.	4 P.M.	10 P.M.	In sun's rays.
1869	72.79	77.51	82.12	77.56	91.44
1870	76.70	80.80	83.17	78.21	95.47

The monthly averages exhibit a corresponding increase of temperature at each time of observation.

The greatest mean monthly variations of heat in each month, compared with the past four years, were as follows :—

YEARS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December
1866	9	10	11	7	8	5	3	3	3	3	7	7
1867	9	10	9	10	8	4	3	3	2	2	7	10
1868	12	11	11	9	6	5	4	3	6	6	8	8
1869	10	14	9	19	15	11	4	4	4	4	13	12
1870	8	15	12	7	9	6	4	3	3	8	7	8

From the above it will be seen that as usual the rainy months maintained the most equable temperature during the year; the cold months and the three immediately preceding the rains showed increased variations, and the two most varied months were February and March.

As was to be expected, the prevalence of general sickness observed a direct ratio to the extent of the diurnal range in each month; in other words, more sickness prevailed when the temperature was the most varied, and less when it was the least so.

The following table will give the distribution of rain in each month for the past four years :—

YEARS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	Number of days when appreciable rain fell.
1867	...	1	1.1	5.5	3.9	5.9	11.7	18.7	8.6	7.5	6.1	5.3	62.2	85
1868	...	2.6	1.2	4.8	9.1	13.5	4.9	16.	10.6	...	...	...	62.5	79
1869	1.2	.4	3.	6.4	4.6	11.5	18.7	6.5	7.2	5.5	...	...	60.	77
1870	...	...	1.	4.8	9.5	8.6	12.44	23.01 <sub>6</sub>	11.48	3.82	...	...	70.15	88

### CROPS.

The crops were below the average of former years. The second late inundation of 1869 seriously interfered with the sowing of the early part of the cold weather of that year; the prolonged drought (there was a continuous dearth of rain for five months) that followed had the effect of only stunting the growth of what was so unseasonably sown; the consequence was an almost total failure of the winter harvest. The drought again, which lasted till the middle of March, prevented dhan being sown early. The *ous dhan* was still uncut, the *amon* had scarcely attained its usual height in July, when an unprecedented flood suddenly came on and either drowned or swept away the greater part of the standing paddy. The east and south of the district suffered the most serious damage, where, in some parts, hardly a vestige of the plant was left; in other parts the average saved was, I hear, about four annas of the anticipated outturn. The sugarcane crop was also for the most part lost. The only crop that fared well was the jute.

[illegible]



## BACKERGUNGE.

MONTHS.	BAROMETER.		THERMOMETER.		RAINFALL.		SUB-SOIL WATER.		REMARKS.
	Maximum.	Minimum.	Maximum.	Minimum.	Old gauge.	New gauge.	Feet.	Inches.	
January ... ..	30.70	30.30	73	65	.....	.....	8	85	Under the head "Rain" two distinct gaugings are noted,—one by the new, and the other by the old gauge.
February ... ..	30.74	30.65	80	69	... ..	.....	10	2.26	
March ... ..	30.44	30.37	87	77	1.3	.....	11	2.79	
April ... ..	29.985	29.971	91	83	4.2	.....	11	5.41	
May ... ..	29.858	29.817	92	84	9.7	9.26	11	0.1	
June ... ..	29.705	29.780	89	82	13.	11.91	7	1.31	
July ... ..	29.608	29.667	87	84	14.1	12.32	.....	3	
August ... ..	29.593	29.584	80	81	15.3	13.49	.....	1.11	
September ... ..	29.734	29.730	84	81	8.8	8.59	... ..	6.1	
October ... ..	29.787	29.781	97	88	7.3	5.63	1	2.11	
November ... ..	29.880	29.783	83	72	1.2	1.18	6	10.	
December ... ..	29.887	29.883	71	64	.....	... ..	6	11.	
Total ... ..	.....	.....	.....	.....	75.2	62.38	.....	.....	

## MYMENSING.

MONTHS.	Highest in the month.	Lowest in the month.	Mean of all the highest.	Mean of all the lowest in the month.	Approximate mean for the month.	Rainfall.
January ... ..	78	65	71.35	55.77	63.22	.....
February ... ..	81	63	76.71	62.71	69.71	9.05
March ... ..	91	63	83.10	69.74	75.74	36
April ... ..	93	66	80.70	71.20	80.45	96
May ... ..	93	76	80.77	81.02	85.48	6.23
June ... ..	94	75	84.20	79.73	81.96	15.86
July ... ..	87	77	81.93	78.15	81.54	14.26
August ... ..	85	79	83.	79.80	81.83	14.02
September ... ..	87	75	82.73	78.90	81.30	16.81
October ... ..	85	74	81.67	77.16	79.9	9.03
November ... ..	83	63	76.73	70.63	75.4	.....
December ... ..	73	59	67.8	61.06	64.41	.....
In the year ... ..	94	55	80.73	75.33	76.57	78.49

Average monthly rainfall = 6.54.

CACHAR.—Since 1869 the observations have been taken at the observatory. The prevailing winds were north-east in the forenoon and south-west in the afternoon. The minimum heat was 40° in December and January, and the maximum 95° in July, the mean average temperature for the year being about 76°. The total rainfall was 107.23 inches. The meteorological conditions were almost as usual. The climate is moist, and hence the lowness of temperature.

**CHITTAGONG.**—The only peculiarity of the year was the dryness of the season up to the end of July, and the unusual rainfall from August to October, making a total of 94·285 inches, *i.e.* 10 inches under the average of the past seven years. The highest temperature in the shade reached 95° 5' (Fahrenheit) on the 18th May, and the lowest 50° (Fahrenheit) on the 24th January. The average rainfall of 1869 being 22 inches, the tanks and wells fell very low and became almost dry till the rains set in.

**TIPPERAH.**

MONTHS.	Mean Temperature.	RAINFALL.		REMARKS.
		Old gauge.	New gauge.	
January ... ..	68°	0·10	.....	
February ... ..	69·5	.....	.. ..	
March ... ..	77°	2°	.....	
April ... ..	80·5	2·40	.....	
May ... ..	84·5	6·40	.....	
June ... ..	83°	15·97	.....	
July ... ..	94·5	7·40	.....	
August ... ..	84°	10·48	14·94	New gauge received in August.
September ... ..	81°	14·58	16·64	
October ... ..	84°	8·18	2·70	
November ... ..	76°	.....	.....	
December ... ..	68°	.....	.....	

**NOAKHOLLY.**

MONTHS.	Rainfall.	Mean Temperature at 9 A.M.	Directions of Winds.
January ... ..	.....	68·0	N
February ... ..	.....	72·5	NW
March ... ..	1·0	60·0	SW
April ... ..	2·2	61·0	S
May ... ..	4·5	85·5	S
June ... ..	14·05	83·0	S
July ... ..	17·32	82·0	S
August ... ..	27·0	32·5	S, SE
September ... ..	21·59	83·0	SE, SW, NW
October ... ..	10·49	82·0	S and N
November ... ..	0·35	76·0	S and N
December ... ..	.....	68·5	N
Total ... ..	98·5	78·52	

*Abstract of Meteorological Observations taken at Chittagong during the year 1870.*

MONTHS.	DRY BULB.			WET BULB.			BAROMETER CORRECTED.			RAIN GUAGE.	Number of days on which rain fell.	PREVAILING WIND.		REMARKS.
	Maximum.	Minimum.	Medium.	Maximum.	Minimum.	Medium.	Maximum.	Minimum.	Medium.	Inches.		Sunrise.	3-30 P.M.	
January ...	83.4	54	68.7	74.7	52	63.3	29.977	29.670	29.821	.....	ES, NE	... SW, S, SW, W	Morning sometimes foggy.	
February ...	84.5	53.4	68.9	75.2	53	64.1	29.969	29.708	29.837	0.125	1	NE, SE	... SW, SE	Ditto
March ...	93.3	61.0	77.1	79.2	58	68.6	29.895	29.517	29.721	0.800	3	N and E	... SW, SE	Ditto
April ...	98.0	67.0	81	82.6	65	73.8	29.843	29.512	29.677	4.100	4	SE, E, N	... SW, S, SW, SE	Thunders 5 days.
May ...	97.0	72.0	84	85.0	71	79.5	29.813	29.442	29.627	4.225	9	SE, E	... SW, SE, and SE	Thunder on one day.
June ...	91.0	70.8	80.9	86.0	75.3	80.6	29.737	29.337	29.547	14.750	10	SE and E	... SE and SW	Thunder on 3 days.
July ...	90.0	70.9	83.4	84.0	75.0	79	29.736	29.350	29.543	7.675	23	SE, SSE, E, and SW	SE, SW, and SSW	
August ...	90.8	75.7	83.2	85.1	74.8	80.1	29.816	29.322	29.569	26.220	24	SE, SSE, and SW	SE and SW	
September...	92.8	76.0	84.4	85.0	75.0	80.0	29.894	29.512	29.703	15.440	21	SE and NE	... SW, SE, and S	
October ...	90.2	73.0	81.6	83.0	72.1	77.5	29.899	29.512	29.705	20.740	6	NE, SE, S, and W	... SW, W, and SE	
November...	80.0	60.0	75.0	81.3	58.0	69.6	30.017	29.644	29.820	0.210	1	N, NE, and NW	... SW, S, and NE	
December ...	80.3	54.0	67.1	69.0	52.4	60.7	30.051	29.735	29.893	.....	.....	N and NW	... NE, NW, and W	
Total ...	.....	66.1	78.5	.....	.. ..	73	.....	.....	29.706	94.285	1.8			

The only peculiarity of the year was the dryness of the season up to the end of July and the unusual rainfall from August to October, making a total of 94.285 inches, i.e., 10 inches under the average of the past seven years. The highest temperature in the shade reached 85.5 (Fahrenheit) on the 18th May, and the lowest 50 (Fahrenheit) on the 24th January. The average rainfall of 1869 being 22 inches, the tanks and wells fell very low and became almost dry till the rains set in.

*Abstract of Meteorological Observations at Chittagong during 1870, compared with those of previous years.*

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	For the year.
Average reading of Barometer.													
For 1870 ... ..	29.824	29.837	29.731	29.677	29.627	29.547	29.513	29.568	29.703	29.705	29.680	29.693	29.706
For past three years...	29.823	29.834	29.765	29.702	29.653	29.503	29.531	29.558	29.586	29.738	29.871	29.908	29.711
Average reading of dry and wet bulb thermometers.													
For 1870 ... { Dry ...	68.7	68.9	77.1	81.0	84.0	80.9	83.4	83.2	84.4	81.6	70.0	67.1	78.6
Wet...	63.3	64.1	68.6	73.8	79.6	80.6	79.0	80.1	80.0	77.5	69.6	60.7	73.0
For past three years { Dry ...	68.4	70.3	78.7	81.4	83.6	82.1	83.0	83.2	83.3	80.4	73.6	78.0	78.6
Wet...	63.0	65.6	71.9	76.1	79.6	80.9	78.2	79.9	79.5	75.9	67.6	61.7	73.1
Rainfall.													
For 1870° ... ..	...	0.125	0.800	4.100	4.275	14.750	7.675	26.230	15.440	2.740	0.210	...	94.285
For past three years ...	0.206	1.410	1.031	5.735	6.797	24.056	22.820	22.230	11.193	6.850	1.406	0.060	104.792

## PUHNA.

MONTHS.	Highest of thermometer.	Lowest of thermometer.	Range.	Rain.	Prevailing Winds.	REMARKS.
January ... ..	83	48	35	....	NW	
February ... ..	86	48	38	....	NW	
March ... ..	101	58	43	0.49	SW	
April ... ..	100	65	35	4.39	SE ...	Slight shock of an earthquake on the 22nd.
May ... ..	112	76	36	4.07	SE	
June ... ..	97	78	19	11.95	SE	
July ... ..	97	78	19	11.63	SE	
August ... ..	99	80	19	12.91	SE	
September... ..	99	78	21	8.99	S	
October ... ..	96	75	21	4.95	S	
November ... ..	88	62	26	0.35	N	
December ... ..	80	54	26	....	N	
Total ... ..	.....	.....	.....	59.73		

## BOGRAH.

MONTHS.	Mean temperature.	Rainfall.	REMARKS.
January ... ..	75	.....	Cool and pleasant,
February ... ..	79.5	.....	Ditto.
March ... ..	93	0.25	Fair.
April ... ..	88	2.62	Changeable; occasional thunder-storms occurred, and two shocks of earthquake were felt on the 22nd.
May ... ..	88	5.75	
June ... ..	87	8.90	Early half close, latter half agreeable.
July ... ..	85	18.47	Cool and agreeable; heavy rains.
August ... ..	84	1.41	Ditto.
September ... ..	83	22.24	Cloudy, close and oppressive.
October ... ..	84	4.68	Close and oppressive, heavy dews at night.
November ... ..	79	.....	Early half sultry, latter cool and pleasant.
December ... ..	70.6	.....	Delightfully cool, heavy dews at night.
Total average ...	.....	80.92	

## MALDAH.

MONTHS.	BAROMETER.			THERMOMETER.			Rainfall.	Direction of the Wind.
	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.		
January ...	30	29.80	29.934	73	59	63	.....	NW & W
February ...	30.25	29.70	29.915	73	61	68	.....	NW, W
March ...	29.95	29.70	29.810	80	71	75	0.20	SW, W, NW
April ...	29.90	29.65	29.767	80	71	81	0.15	NE, NW, SE
May ...	29.70	29.45	29.614	90	81	86	0.82	S, SE, SW, E, NW
June ...	29.70	29.50	29.596	89	79	84	10.81	S, SE, SW, NE
July ...	29.65	29.45	29.508	87	83	84	13.31	S, SE, SW
August ...	29.75	29.15	29.588	87	82	84	11.88	SW, SE, S
September ...	29.85	29.55	29.700	89	79	84	8.97	SW, E, NE, NW
October ...	29.95	29.70	29.837	89	75	83	7.01	SE, E, NE
November ...	30.10	29.70	29.945	82	67	74	.....	N, NE, NW, W
December ...	30.50	29.80	29.970	68	62	64	.....	NW, NE, W
Total of the year	30.10	29.45	29.767	90	59	77½	53.5	

At Rungpore the meteorological observations were very imperfectly kept by a Native Doctor, and they are not considered worthy of record by Dr. Bowser. Why should the Native Doctor, from carelessness or ignorance, be permitted to neglect this duty? Other and better arrangements ought to have been made. The average rainfall is said to be 63 inches; the average temperature, 72°3.

## RAJSHAHYE.

MEAN OF	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	REMARKS.
Thermometer ...	68.7	72.1	78.6	86.4	91.7	80.9	87.1	85.0	84.4	84.9	79.1	66.3	48.97 inches registered by Symonds' new rain gauge.
Barometer ...	30.11	30.06	29.92	29.86	29.77	29.67	29.68	29.66	29.79	29.85	30.80	30.80	
Rainfall ...	.....	.....	0.10	0.65	2.26	5.26	9.52	15.26	12.08	3.24	.....	.....	
Prevailing winds	NW	SE	SW	SW	SW	SW	SW	SW	SE	NE	NE	NW	

RAJSHAHYE.—During October and November, when cholera was very prevalent in the jail, the meteorological conditions were as follows. The temperature was greater by 6° than in 1869; the daily range varied 1° to 5°, whilst in the corresponding period of 1869 it was uniformly 5°. The rainfall was 3.24 inches (the last day being the 28th) in the corresponding week of 1869. The barometric pressure was .15 lower than in the same period of 1869; the diurnal range was .02, against .04 in 1869. The prevailing wind was north-east instead of south-east as in 1869. For the first 12 days in November in the mornings the thermometer ranged from 80° to 84°, the maximum varying from 84° to 86°, the minimum range for the same period in 1869 being 74° to 77°, and the maximum from 80° to 81°. On the morning of the 14th November, however, the temperature suddenly fell to 76°; the days were cloudy, while the temperature continued high; the nights were dewy, when the temperature fell very low. The atmospheric pressure for this period was lower by .14 than in the corresponding period of 1869, the direction of the wind being north-east against south-west as in 1869.

## JULPIGOREE.

MONTHS.	THERMOMETER.			Monthly range of thermometer.	Rainfall.	REMARKS.
	Maximum.	Minimum.	Mean.			
January ... ..	77	46	64.20	32	...	From the meteorological table of Julpigoree it would appear that the range of the thermometer was very considerable, especially in February, March, and April, and least in July and August. Owing to the want of a rain-gauge in the station, the rainfall for the first four months of the year could not be registered, but it was exceptionally heavy.
February ... ..	86	54	69.20	33	...	
March ... ..	94	58	71.20	37	...	
April ... ..	97	60	78.50	38	...	
May ... ..	90	71	80.50	20	10.81	
June ... ..	86	74	79.00	13	42.22	
July ... ..	87	76	80.48	12	46.31	
August ... ..	87	76	81.35	12	21.49	
September ... ..	89	73	79.80	17	26.58	
October ... ..	87	67	78.50	21	19.68	
November ... ..	84	58	71.53	27	...	
December ... ..	73	53	63.45	21	...	
Total average ...	97.4	46.0	74.80	23.6	167.09	

## BURDWAN.

MONTHS.	Rainfall in inches.	REMARKS.
January ... ..	0.20	There is no barometer belonging to the station stores, and only one useless thermometer. The average rainfall is 61.41.
February ... ..	0.30	
March ... ..	1.80	
April ... ..	3.60	
May ... ..	0.64	
June ... ..	6.30	
July ... ..	7.98	
August ... ..	11.73	
September ... ..	7.40	
October ... ..	3.14	
November ... ..	0.06	
December ... ..	.....	
Total ...	43.15	

## BANCOORAH.

The following\* gives the comparative temperature, rainfall, and the prevailing winds for 1869-70:—

MONTHS.	MEAN TEMPERATURE (RED IN THE CHART.)		RAINFALL (BLUE IN THE CHART.)		WIND (GREEN IN THE CHART.)		REMARKS.
	1869.	1870.	1869.	1870.	1869.	1870.	
January ... ..	66	67	0.30	0.60	.....	W	The rainfall (41.8 inches) was much below the average of the past years, which was about 52.75.
February ... ..	72	74	0.80	.....	.....	SW	
March ... ..	74	85	4.10	0.10	.....	S	
April ... ..	86	87	0.40	1.20	.....	S	
May ... ..	87	96	3.50	1.50	.....	SE	
June ... ..	86	86	7.45	6.75	.....	E	
July ... ..	74	83	15.50	12.05	.....	SW	
August ... ..	81	82	4.80	10.68	.....	SE	
September ... ..	80	83	4.65	4.75	.....	S	
October ... ..	78	81	9.10	3.48	.....	S	
November ... ..	73	72	.....	0.62	.....	NW	
December ... ..	66	64	.....	.....	.....	W	

MONTHS.	Mean Temperature.	Rainfall.	Prevailing Wind.
January ... ..	67	0.60	W
February .....	74	.....	SW
March ... ..	85	0.10	S
April ... ..	87	1.20	S
May ... ..	96	1.50	SE
June ... ..	86	6.75	E
July ... ..	83	12.06	SW
August ... ..	82	10.58	SE
September ... ..	83	4.75	S
October ... ..	81	3.46	S
November ... ..	72	0.62	NW
December ... ..	64	.....	W

## BEERBHOOH.

MONTHS.	THERMOMETER.			Rain.	Wind.	Rainage.	REMARKS.
	Maximum.	Minimum.	Mean.				
January ... ..	76	50	63	26	NE	.....	Cold, bracing, and salubrious.
February .....	82	53	67	29	W	.....	Cool, agreeable; a few cases of cholera in the interior.
March ... ..	92	63	77	29	W	.....	Cool, agreeable; lightning and thunder with sharp squalls from north-west; a few cases of cholera in the town.
April ... ..	97	71	84	25	W	0.46	Heat most oppressive; ditto ditto.
May ... ..	103	79	91	23	W	2.48	Ditto ditto; occasional strong squalls ditto.
June ... ..	94	78	86	16	NW	16.511	First half oppressively close and sultry; latter half cool, with fresh southerly wind ditto.
July ... ..	89	77	83	12	SE	14.59	Very cloudy, close, and sultry; ditto ditto, ditto.
August ... ..	87	73	80	14	SE	16.36	Cloudy, close, and sultry first part; latter cool; cholera disappeared.
September... ..	88	79	83	9	SE	7.98	First half cool and agreeable; latter cloudy, close, and sultry; fever raging.
October ... ..	86	76	81	10	SE	3.88	Beginning and middle close, end cool; fever prevalent.
November ... ..	81	62	71	19	NW	.....	Beginning close and cloudy, remainder cool and agreeable; ditto ditto.
December .....	74	49	61	25	NW	.....	Cool and agreeable throughout.
Total ... ..	87	67	77	20	.....	62.26	

DEOGHUR.—The year 1870 was much cooler than the preceding year. The hot weather had scarcely been felt when the thermometer attached to the hospital went up to 109°, in the Civil Surgeon's house showing still lower. The average temperature for the year was 78°. Rain fell in every month except in February and November; the total number of rainy days being 65. The highest monthly rainfall was 14·94 inches in July, against 11·08 inches, the highest rainfall, which was also in July 1869. The total rainfall was 47·8 inches, exceeding that of 1869 by 3·7 inches and that of 1868 by 8·24 inches. It often happens that while Deoghur itself is deluged with rain, there is scarcely a drop in the town close by, and *vice versa*. The average rainfall of Rohnee was 50 per cent. more than in Deoghur, owing, as supposed by the Civil Surgeon, to the former being more thickly wooded and the latter more open.

## RANCHEE.

MONTHS.	MAXIMUM.				MINIMUM.				MEAN.				Rainfall in inches.
	Sun- rise	10 a.m.	Noon.	4 p.m.	Sun- rise.	10 a.m.	Noon	4 p.m.	Sun- rise	10 a.m.	Noon.	4 p.m.	
January ... ..	86	72	75	75	51	61	64	64	65·50	64·77	69·64	66·67	·82
February ... ..	84	79	82	81	58	69	73	68	60·80	73·73	76·50	77·75	·04
March ... ..	74	89	94	91	61	70	67	70	67·93	80·22	86·74	83·29	·22
April ... ..	76	94	99	96	65	73	76	73	72·33	86·06	89·88	88·43	·52
May ... ..	84	101	105	103	76	92	89	80	81·65	97·96	100·11	97·93	·48
June ... ..	86	100	102	99	72	96	79	76	77·43	86·60	89·00	83·56	12·49
July ... ..	78	84	89	86	73	78	79	75	75·80	82·12	83·67	80·98	11·17
August ... ..	76	84	88	86	74	76	75	74	74·80	80·16	80·71	80·87	15·08
September ... ..	76	84	88	86	74	76	79	78	75·20	80·40	82·80	81·33	9·87
October ... ..	76	83	86	84	69	72	72	70	72·41	79·09	78·31	79·70	2·83
November ... ..	74	78	82	79	58	68	70	70	62·40	72·10	75·30	74·40	None
December ... ..	69	70	74	73	50	58	62	63	62·83	63·93	66·45	66·25	None
Averages for the year ...	74·08	84·83	88·66	86·58	65·08	72·41	73·5	71·5	69·02	78·90	82·30	82·15	53·32 Total

## SINGBHOOM.

MONTHS.	Approximate mean temper- ature during 1870.	Rainfall.	Prevailing direction of wind.	REMARKS.
January ... ..	66·75	1·50	SW	The rainfall was recorded by the old gauge. By the new gauge the amount was 47·62 inches.
February ... ..	75·75	Nil.	W	
March ... ..	85·50	0·48	W & S	
April ... ..	93·50	0·41	W	
May ... ..	97·25	1·98	S & W	
June ... ..	91·50	8·14	W & S	
July ... ..	88·00	14·36	W & S	
August ... ..	88·50	9·82	W	
September ... ..	86·50	8·63	S & W	
October ... ..	84·50	6·01	SE	
November ... ..	77·75	0·66	SE	
December ... ..	71·25	Nil.	E & S W	
For the year ...	84	48·81	SW	

MAUNBHOOM.—The following facts are submitted:—Rainfall 47·80 inches; temperature, maximum 107° in May; medium 82·5; minimum 58 in January.



MONTHS.	THERMOMETER.						Approximate mean.	HYGROMETER.				RAIN.			Winds.	CLOUD.		REMARKS.
	Maximum.	Minimum.	Range.	Mean maximum.	Mean minimum.	Mean range.		Mean dry.	Mean wet.	Mean degree of humidity.	Mean dew point.	Number of days.	Inches.	A. M.		P. M.		
January ...	80	42	38	73.4	40.1	24.5	61.2	68.4	61.6	65.6	56.6	1	0.5	W 25 S 25 E 18 W 24 W 24 W 17 W 8 W 1	0 0 0 0 0 0 0 0	2	2	The extremes of temperature were 111° and 42° against 118° and 41° in the previous year. The rainfall was lower than for some years back.
February ...	85	47	38	80.3	53.5	26.8	66.9	74.8	64.7	65.9	57.4	2	0.2	E 2 E 1 E 5 E 13 S, E, & K, 14	0 0 0 0 0 0 0	...	1	
March ...	101	55	46	87.0	62.0	28.7	74.8	84.8	68.1	41.0	58.8	...	...	W 24 W 24 W 17 W 8 W 1	0 0 0 0 0	3	2	
April ...	104	62	42	98.1	69.0	28.7	83.8	91.0	73.0	39.8	61.8	...	0.15	E 5 E 5 E 13 S, E, & K, 14	0 0 0 0 0	4	4	
May ...	111	72	39	103.8	76.3	28.0	90.0	97.4	79.3	43.1	69.4	2	0.92	W 24 W 24 W 17 W 8 W 1	0 0 0 0 0	2	2	
June ...	111	74	37	100.0	79.0	21.5	89.3	90.8	62.9	68.3	77.9	20	8.00	E 20 E 10 W 1 W 4 W 8 W 0	0 0 0 0 0 0	10	10	
July ...	100	78	22	90.4	79.3	14.3	84.8	87.0	82.7	80.2	79.0	10	11.86	E 20 E 10 W 1 W 4 W 8 W 0	0 0 0 0 0 0	15	14	
August ...	98	77	21	83.1	78.3	14.8	85.7	86.8	82.4	79.4	76.0	22	7.90	E 20 E 10 W 1 W 4 W 8 W 0	0 0 0 0 0 0	13	12	
September.	97	73	24	81.7	76.9	14.8	84.3	86.1	82.4	82.4	80.0	16	6.75	E, E, & N, 16 E 5 E 5 E 0	0 0 0 0	8	9	
October ...	97	67	30	88.3	72.5	15.8	80.4	83.1	78.2	76.0	75.0	9	4.70	W 1 W 4 W 8 W 0	0 0 0 0	4	5	
November.	80	52	37	80.4	60.8	19.5	70.6	76.5	70.9	72.6	68.9	...	...	W 1 W 4 W 8 W 0	0 0 0 0	1	1	
December.	76	45	31	71.7	47.9	23.7	59.8	68.8	60.2	67.8	54.9	...	...	W 1 W 4 W 8 W 0	0 0 0 0	1	7	
Total ...	...	...	...	...	...	...	...	...	...	...	...	...	41.04	...	...	...	..	

SHAHABAD.

MONTHS.	THERMOMETER IN SHADE.			THERMOMETER IN SUN'S RAYS.			SELF REGISTERING THERMOMETER.			BAROMETER.			RAIN- FALL.  Inches.	General direction of Wind.	REMARKS.
	Maximum.	Minimum.	Medium.	Maximum.	Minimum.	Medium.	Maximum.	Minimum.	Medium.	Highest reading.	Lowest reading.	Medium of both.			
	°	°	°	°	°	°	°	°	°	Inches.	Inches.	Inches.			
January ...	80	49	64.5	110	74	92	79	40	59.5	30.980	29.700	30.370	...	W	The rainfall in 1869 was 42.25: in 1868, 27.44: in 1867, 51.95 inches.
February ...	96	54	75.0	120	90	105	87	43	65.0	30.080	29.660	30.320	...	W & E	
March ...	100	64	82.5	120	90	105	100	53	76.5	29.920	29.560	29.740	0.75	W & E	
April ...	110	74	92.0	130	112	121	112	58	85.0	29.940	29.510	29.725	1.05	W & E	
May ...	106	84	95.0	130	90	110	116	62	80.0	29.760	29.330	29.545	...	W & E	No data are submitted regarding the hygrometer, force of wind, dew point, &c.
June ...	102	84	93.0	124	84	104	118	70	94.0	29.040	29.300	29.445	0.99	E & W	
July ...	95	85	90.0	124	88	106	93	71	82.0	29.590	29.300	29.445	8.48	E & W	
August ...	92	83	87.5	120	83	101.5	92	69	80.5	29.700	29.320	29.510	10.60	W & E	
September ...	93	82	87.5	120	84	102	91	61	76.0	29.800	29.660	29.630	8.60	E & W	
October ...	90	74	82.0	122	84	103	83	59	76.0	29.960	29.620	29.780	10.66	E & W	
November ...	80	66	72.5	110	80	95	92	44	63.0	30.080	29.740	29.910	...	W	
December ...	72	59	65.5	100	80	90	78	39	57.0	31.020	29.750	30.385	...	W	
Mean for the year ...	93	71.41	82.20	119.16	86.58	102.87	95.00	55.75	75.33	30.116	29.525	29.817	47.13 Total.		

## GYA.

MONTHS.	Maximum.	Minimum.	Range.	Rainfall in inches.
January ... ..	74.95	57.87	15.60	.54
February ... ..	80.95	61.78	18.71	.....
March ... ..	81.71	76.76	21.81	.76
April ... ..	99.00	75.96	22.66	.27
May ... ..	103.39	87.81	6.13	.42
June ... ..	96.52	84.25	12.18	4.57
July ... ..	98.34	80.80	7.48	11.53
August ... ..	86.76	78.27	7.48	10.73
September ... ..	87.53	78.70	7.80	4.06
October ... ..	85.17	75.00	10.17	6.63
November ... ..	76.41	62.08	13.36	.....
December ... ..	69.7	52.30	17.40	.....
Average for the whole year ...	80.61	73.51	13.39	39.51 Total.

## SARUN.

*Rainfall for ten years.*

YEARS.	Inches.	REMARKS.
1860 ... ..	19.00	The average temperature for hot weather was 95° " " " " rain " 89° " " " " cold " 65° " " " " maximum hot " 106° " " " " minimum " 40°
1861 .. ..	37.38	
1862 ... ..	35.50	
1863 ... ..	56.26	
1864 ... ..	29.54	
1865 .. ..	31.54	The meteorological observations have been kept for a few years only. They are very incomplete. The average temperature for the hot weather was 95°, for the rains 89°, for the cold weather 65°; maximum 106°, and minimum 40°. The temperature during 1870 was milder than usual, and the health of the people was above the average.
1866 ... ..	26.39	
1867 ... ..	77.17	
1868 ... ..	26.70	
1869 ... ..	43.00	
1870 ... ..	43.32	

TIRHOOT.—“No regular meteorological records were kept except the rainfall; this amounted to 79½ inches, which was more than double that of 1869, which was only 39½ inches. The country, and especially the station, suffered from scarcity of water and drought during the second quarter of the year. The level of the sub-soil water was observed to have sunk very low at the time the cholera broke out; wells and tanks became dry as the hot season advanced.”

## BALASORE.

MONTHS.	THERMOMETER.			BAROMETER.			Rainfall.	REMARKS.
	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.		
January ... ..	81	57	69	29.05	29.73	29.84	1.18	These meteorological observations seem to be quite reliable, being taken by Captain Bond, late Master Attendant. The rainfall was recorded in the jail. The rains set in rather late, ceasing till the first week of November.
February ... ..	85	65	75	.02	.65	.78	.....	
March ... ..	95	71	83	.86	.61	.73	0.80	
April ... ..	95	55	75	.80	.52	.66	2.11	
May ... ..	97	83	90	.71	.36	.53	0.47	
June ... ..	97	80	88	.67	.19	.43	8.08	
July ... ..	89	80	84	.59	.29	.44	7.72	
August ... ..	90	78	84	.71	.38	.54	9.38	
September ... ..	88	80	84	.73	.42	.57	11.36	
October ... ..	88	78	83	.80	.59	.69	7.99	
November ... ..	84	69	76	.98	.67	.82	2.21	
December ... ..	81	59	70	.98	.68	.83	.....	
	.....	.....	.....	.....	.....	.....	51.00	

CUTTACK.—The meteorological observations of the year present nothing remarkable. The rains were very irregular, and but for the canals the whole of the crops would have perished; but the effect of standing water being let into canals in parts of the country formerly quite dry should be watched.

## POOREE.

MONTHS.	BAROMETER.		DEW-POINT.		ELASTIC VAPOR.		Mean average temperature.	Rainfall in inches.	REMARKS.
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.			
January ...	30'45	30'32	58'40	59'80	5'300	5'550	83'67	.....	The meteorological observations were made by the hospital assistant and checked by the civil surgeon. The rainfall was small before June, the weather being hot and oppressive. From June to September the rains were heavy, and in October there was a fair amount of rainfall, making the winter milder than that of 1860.
February ...	30'41	30'29	59'00	40'20	5'450	5'645	84'75	... ..	
March ...	30'34	30'24	65'50	65'05	5'755	5'805	80'00	'21	
April ...	30'25	30'15	73'80	73'40	5'485	5'170	80'43	.....	
May ...	30'20	29'59	77'05	77'30	5'385	5'495	81'80	.....	
June ...	29'63	29'59	75'75	76'00	5'968	5'040	80'10	2'99	
July ...	29'06	29'53	74'95	76'30	5'745	5'120	86'87	7'44	
August ...	30'07	29'98	75'20	74'80	5'780	5'690	86'98	2'24	
September ...	30'15	30'08	75'70	74'95	5'895	5'715	88'56	6'58	
October ...	30'27	30'20	75'70	71'15	5'930	5'720	87'69	10'97	
November ...	30'28	30'28	67'35	64'95	5'028	5'640	84'10	2'63	
December ...	30'51	30'44	68'10	69'15	5'035	5'140	80'00	.....	



## SEEBSAUGOR.

MONTHS.	TEMPERATURE.			Rainfall.	Prevailing Winds.	REMARKS.
	Maximum.	Minimum.	Mean.			
January ... ..	69	52	60.22	.1	NE, E	The observations were taken by the Civil Surgeon in the Jail Hospital. The total rainfall during the year was 95.69 inches, against 103.4 inches in 1869.
February ... ..	73	54	63.48	1.3	NN, E	
March ... ..	77	58	66.67	2.8	NE, N	
April ... ..	93	63	75.03	4.6	NE, S	
May ... ..	93	72	81.93	13.2	SW, NE	
June ... ..	92	75	82.66	18.27	S, S, W	
July ... ..	94	78	84.22	18.01	SW, W	
August ... ..	93	77	84.87	12.63	SS, W	
September ... ..	92	75	82.43	16.06	SW, W	
October ... ..	92	68	79.93	5.79	NN, E	
November ... ..	84	59	72.26	2.63	N, NE	
December ... ..	72	51	60.80	.8	N, NE	

DIBROOGHUR.—The observatory establishment of the station has been abolished, and therefore no barometrical or hygrometrical observations were taken. The rainfall amounted to 90.11 inches, which was considerably below the average. The average depth of water in wells is 14 to 26 feet from March to May, 3 to 5 feet from June to October, and 8 to 4 feet from September to December.

APPENDIX.

ABSTRACTS OF MORTUARY REGISTRATION

THROUGHOUT

BENGAL, BEHAR, ORISSA, AND ASSAM,

FOR SIX MONTHS,

(JULY TO DECEMBER 1870.)



**ANNUAL FORM No. I.—Deaths registered in the different districts of the Lower Provinces during the 6 months  
(from July to December) of the year 1870.**

1	2	3	4	5	6	7			8			9
Number.	DIVISIONS.	DISTRICTS.	Estimated popula- tion.	Area in acres.	Average popula- tion per acre.	NUMBER OF DEATHS REGISTERED.			RATE OF DEATHS PER 1,000 OF POPULATION.			REMARKS.
						Male.	Female.	Total.	Male.	Female.	Total.	
1	Bhaugulpore ...	Bhaugulpore ...	951,879	2,759,360	0·8	2,151	1,381	3,532	2·26	1·45	3·71	* For 4 months * For 3 ditto.
2		Monghyr ...	878,765	2,004	337·2	2,028	1,404	3,432	2·31	1·60	3·91	
3		Purneah ...	879,117	5,662	155·2	540	300	900	·62	·41	1·03	
4		Rajmehal ...	248,000	1,200	206·6	162	74	236	·65	·30	·95	
5		Deoghur, S. P. ...	421,855	2,620	162·1	789	504	1,389	1·86	1·40	3·26	
		Total ...	2,264,010	2,764,544	0·8	4,969	3,370	8,347	2·20	1·50	3·70	
6	Patna ...	Patna ...	2,811,919	1,690,933	1·65	1,768	1,560	3,328	·64	·55	1·19	
7		Gya ...	1,307,392	5,443	261·2	2,078	2,055	4,562	1·83	1·59	3·33	
8		Chunparan ...	918,754	2,336,897	0·4	2,279	1,596	3,874	2·47	1·75	4·22	
9		Saran ...	1,272,420	1,070,521	0·8	4,501	2,809	7,310	3·34	2·21	5·75	
10		Shahabad ...	1,611,331	31,502	51·1	2,114	1,627	3,741	1·31	1·00	2·31	
11		Tirhoot ...	1,800,068	.....	.....	2,000	1,594	4,254	1·47	·89	2·34	
		Total ...	9,793,797	5,644,496	1·4	15,829	11,246	27,075	1·67	1·23	2·90	
12	Rajshahye ...	Rajshahye ...	802,003	4,770,732	0·1	1,370	1,147	3,023	2·34	1·43	3·77	* For 4 months.
13		Bograh ...	423,185	1,095	212·7	1,807	509	1,405	2·46	1·81	4·27	
14		Dinapore ...	120,899	5,234	24·8	1,085	792	1,877	8·47	6·29	14·76	
15		Maidah ...	307,537	821,320	0·3	635	431	1,066	2·08	1·41	3·47	
16		Mooredabad ...	1,064,041	2,439	477·2	1,234	925	2,189	1·08	·84	1·90	
17		Puhna ...	641,880	11,344,004	·05	1,002	616	1,618	1·56	·96	2·52	
18	Rangpore ...	511,388	.....	.....	1,068	926	2,594	3·12	1·88	4·80		
		Total ...	3,557,153	16,946,748	0·2	7,500	4,837	12,337	2·10	1·34	3·44	
19	Burdwan ...	Burdwan ...	1,040,131	2,692	350·7	5,542	4,184	9,726	5·28	3·90	9·27	* For 4 ditto.
20		Bancoorah ...	722,166	.....	.....	1,404	894	2,298	1·94	1·24	3·18	
21		Reerhoom ...	912,250	2,330	39·5	1,154	878	2,032	1·26	·96	2·22	
22		Moochly ...	1,044,745	.....	.....	2,102	1,223	3,325	2·00	1·22	3·22	
23		Serampore ...	324,650	.....	.....	1,261	833	2,114	3·12	2·08	5·20	
24		Howrah ...	553,238	.....	.....	2·1	228	512	·51	·42	·93	* For 5 ditto.
25		Midnapore ...	1,200,000	4,634	248·2	1,924	1,250	3,174	1·60	1·05	2·65	* For 5 months.
		Total ...	3,144,701	.....	.....	10,309	7,121	17,433	3·21	1·85	5·06	
26	Presidency ...	Nuddea ...	1,224,900	2,089,702	·66	1,538	1,090	2,637	1·25	·91	2·16	
27		Jessore ...	1,278,196	1,145,084	1·1	5,077	3,789	8,866	4·00	3·00	7·00	
28		24 Pergunnas ...	592,857	1,230,910	0·3	8,684	2,642	6,326	6·20	4·42	10·62	
		Total ...	3,095,952	4,471,726	0·7	10,299	7,511	17,809	3·32	2·43	5·75	
29	Dacca ...	Dacca ...	1,032,308	1,805,040	0·6	918	623	1,540	·89	·61	1·50	* For 5 ditto.
30		Baekergunge ...	1,134,452	3,400,720	0·3	2,880	1,735	4,621	2·51	1·64	4·08	
31		Purreedpore ...	666,940	900,880	0·5	567	366	933	1·00	·65	1·65	
32		Mymensingh ...	.....	.....	.....	Returns not received.			.....	.....	.....	
33		Sylhet ...	.....	2,604,305	0·5	314	157	471	·30	·15	0·45	
34		Cachar ...	131,000	736,940	0·2	264	198	462	2·00	1·50	3·50	
		Total ...	1,832,292	6,945,280	0·2	3,717	2,299	6,016	2·03	1·23	3·28	
35	Chittagong ...	Chittagong ...	722,083	1,744,773	0·4	2,330	1,951	4,481	3·06	2·70	6·36	
36		Nonkhally ...	254,965	1,043,200	0·2	805	700	1,604	3·74	2·78	6·52	
37		Tippurah ...	700,500	1,664,000	0·4	758	552	1,310	1·08	·78	1·98	
		Total ...	1,677,548	4,451,973	0·4	4,183	3,212	7,395	2·59	1·91	4·50	
38	Orissa ...	Cuttack ...	1,073,463	2,047,334	0·5	3,238	3,022	6,260	3·00	2·79	5·70	
39		Balasore ...	500,000	.....	.....	890	441	1,357	1·79	·92	2·71	
40		Pooroo ...	500,963	79,714	0·3	1,339	1,074	2,413	2·60	2·15	4·84	
		Total ...	2,073,426	.....	.....	5,473	4,557	10,030	2·63	2·19	4·82	
41	Chota Nagpore...	Hazarechaugh...	1,221,173	.....	.....	1,583	1,244	2,820	1·30	1·01	2·31	
42		Loharingra ...	1,303,707	7,430,000	0·1	2,484	1,980	4,464	1·90	1·35	3·15	
43		Maunbhoom ...	793,555	2,763,503	0·3	1,269	855	2,124	1·60	1·07	2·67	
44		Singhoom ...	286,210	5,017,280	0·05	978	807	1,785	3·37	2·74	6·31	
		Total ...	3,600,645	.....	.....	6,316	4,880	11,202	1·70	1·32	3·02	
45	Assam ...	Durrung ...	247,915	7,048	35·1	Return not received.			.....	.....	.....	* For 4 months * For 4 ditto.
46		Nowgong ...	214,610	.....	.....	351	165	516	·90	·47	1·37	
47		Sochaugor ...	396,206	.....	.....	250	132	382	2·85	2·42	5·27	
48		Kamroop ...	94,865	2,868,880	0·3	212	183	425	2·19	1·31	4·00	
49		Luckinapore ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	
50		Khasi and Jynteah Hills ...	8,346	4,550	1·8	11	.....	11	1·32	.....	1·32	* For 5 ditto.
		Total ...	309,275	.....	.....	863	702	1,555	3·04	2·21	4·85	
51	Cooch Behar ...	Julpigoree ...	281,878	1,815,543	0·1	360	246	606	1·15	·80	1·75	* For 5 ditto. * For 5 ditto.
52		Gowalparah ...	294,451	2,842,538	0·1	684	483	1,167	2·32	1·65	3·97	
53		Darjeeling ...	59,000	787,200	0·7	168	187	355	2·85	1·47	4·32	
		Total ...	294,451	2,842,538	0·1	715	404	1,200	2·32	1·05	3·97	
		Grand total ...	31,719,131	44,897,535	0·66	70,167	50,246	1,20,403	2·21	1·59	3·80	

\* Excluded from the divisional total, the returns for the half year being incomplete.



## ANNUAL FORM NO. II.—Deaths registered in the different districts of the Lower

1	2	3	4	5																	
Number.	Divisions.	Districts.	Estimated population.	July.			August.			September.			October.			November.			December.		
				Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
Bhaugulpore.		Bhaugulpore	951,879	134	103	237	306	181	487	311	206	517	383	283	666	556	818	873	487	288	775
		Monghyr	878,186	393	346	740	473	341	814	204	214	418	102	179	281	538	300	628	287	128	353
		Purneah	879,117	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Rajmahal	249,000	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Doughur	424,855	126	99	225	110	...	...	110	...	...	134	93	229	171	108	279	139	51	75
		Total	2,254,910	655	517	1,202	890	613	1,504	724	501	1,225	803	550	1,353	1,054	1,026	1,680	848	631	1,374
Patna.		Patna	2,814,919	428	332	760	478	423	901	208	208	416	223	202	425	177	177	354	174	168	339
		Gya	1,307,392	450	310	760	691	552	1,243	311	357	708	356	362	718	301	242	541	202	202	404
		Chumpran	918,738	302	236	538	347	239	585	231	231	462	307	304	611	303	211	514	449	299	441
		Saran	1,273,429	757	498	1,255	1,046	733	1,779	809	602	1,371	629	398	1,027	676	387	1,043	525	341	866
		Shahabad	1,611,251	285	178	463	517	318	832	432	318	750	357	292	649	340	311	696	330	315	645
		Total	9,703,797	2,700	1,640	4,430	3,330	2,551	5,881	2,791	1,970	4,770	2,230	1,771	3,991	2,216	1,640	3,105	1,719	1,569	4,039
Rajshahye.		Rajshahye	802,903	205	167	372	283	166	451	214	150	364	304	218	522	408	329	637	490	217	617
		Bogra	422,193	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Dinapore	129,886	171	118	287	169	121	290	157	113	270	179	149	308	176	131	307	287	190	457
		Maldah	307,537	67	55	122	63	50	119	78	61	139	121	66	186	154	87	241	159	101	259
		Moorsheadabad	1,164,941	237	176	413	221	147	408	227	161	388	293	145	350	207	134	341	130	122	252
		Total	3,587,153	1,093	739	1,832	1,104	703	1,807	1,062	706	1,768	1,473	903	2,370	1,350	817	2,107	1,399	910	2,309
Burdwan.		Burdwan	1,049,134	561	438	994	651	440	1,111	726	597	1,323	1,257	990	2,223	1,408	1,015	2,418	1,024	693	1,717
		Banooorah	722,164	208	144	347	213	139	352	236	174	410	208	116	324	333	191	624	211	130	341
		Beerbhoom	912,259	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Hooghly	1,014,745	136	81	217	237	149	386	273	174	447	300	230	536	346	320	636	235	148	383
		Serampore	324,456	107	81	190	155	140	295	203	133	336	210	138	354	259	157	407	328	172	500
		Total	3,114,701	809	654	1,513	1,081	767	1,848	1,233	952	2,185	1,743	1,243	2,898	2,322	1,518	3,840	1,909	1,103	2,973
Presidency.		Nudda	1,224,830	193	151	346	225	107	392	180	147	327	252	170	424	330	217	547	350	239	593
		Jessore	1,278,196	611	344	955	741	449	1,210	919	710	1,629	921	768	1,689	935	743	1,694	1,050	747	1,797
		24 Pargunnahs	592,357	494	389	884	526	340	906	602	456	1,118	647	441	1,088	651	471	1,122	713	516	1,225
		Total	3,095,222	1,190	875	2,065	1,492	1,016	2,508	1,781	1,313	3,074	1,820	1,355	3,205	1,916	1,421	3,337	2,119	1,571	3,620
Dacca.		Dacca	1,032,306	...	...	...	147	118	265	160	92	258	230	148	379	183	120	303	192	150	342
		Beckergunge	1,134,452	311	171	482	460	234	694	578	330	908	604	304	815	562	380	911	400	308	771
		Surrounding	566,840	20	8	28	49	61	110	99	62	161	101	89	182	178	78	216	154	87	241
		Mymensingh	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Sylhet	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Total	1,832,292	669	229	897	565	351	916	713	424	1,137	677	395	1,072	742	487	1,229	651	414	1,065
Chittagong.		Chittagong	722,063	478	309	777	417	313	730	321	209	530	442	320	731	340	315	605	542	328	634
		Noakhali	254,063	164	101	265	122	85	207	123	94	217	146	101	247	144	141	285	206	187	393
		Tipperah	700,600	6	1	7	4	7	11	140	94	234	222	142	364	197	164	361	197	144	331
		Total	1,677,544	640	601	1,241	543	405	948	564	487	1,041	770	572	1,342	721	620	1,311	925	637	1,563
Orissa.		Cuttack	1,072,463	641	518	1,159	535	552	1,187	433	427	860	399	402	791	603	500	1,003	687	631	1,320
		Balsore	500,000	212	87	299	145	90	235	98	71	169	118	47	165	204	113	321	115	63	163
		Pooree	500,000	416	317	733	213	171	384	190	160	350	167	130	287	142	181	273	221	165	386
		Total	2,072,463	1,269	922	2,191	913	813	1,766	721	658	1,370	664	579	1,245	855	744	1,607	1,023	851	1,871
Chota Nagpore.		Hazareebaugh	1,221,173	828	242	1,070	346	287	633	242	186	428	211	166	377	236	175	403	233	189	411
		Lohardigha	1,593,707	309	232	541	461	1,144	491	390	380	518	359	278	537	354	501	532	304	249	599
		Manbhoom	708,556	212	104	316	259	203	463	194	107	301	146	90	230	176	136	289	134	393	393
		Singbhoom	244,210	106	161	267	187	139	306	135	102	237	141	109	250	147	144	281	199	189	354
		Total	3,806,646	1,056	829	1,885	1,425	1,123	2,548	1,062	784	1,846	866	715	1,581	863	687	1,581	1,009	748	1,757
Assam.		Durrung	247,015	...	...	...	...	...	...	34	35	69	21	12	33	67	44	111	102	73	175
		Nowgong	21,810	170	170	340	98	83	179	83	90	179	93	67	159	65	38	103	96	68	162
		Rebsaigong	386,206	...	...	...	...	...	...	68	33	90	47	30	77	47	18	65	93	53	146
		Luckimpore	94,005	64	32	96	27	26	55	76	55	76	46	36	88	27	19	42	17	12	29
		Jynteah Hills	8,345	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Total	309,276	253	202	435	123	111	234	123	139	265	188	103	241	88	67	146	113	78	191
Cooh Behar.		Julpigoree	281,878	...	...	...	65	35	100	74	50	124	51	34	85	59	52	111	131	75	206
		Gowdiparah	294,161	122	78	200	137	84	221	114	91	205	118	61	189	90	76	165	134	68	219
		Darjeeling	56,000	...	...	...	53	27	80	40	10	50	30	31	61	40	20	72	...	...	...
		Total	294,461	122	78	200	137	84	221	114	91	205	118	61	190	90	76	165	134	68	219
		Grand total	31,719,131	16,277	7,209	17,466	11,692	8,815	20,507	10,891	7,964	18,855	11,292	9,206	20,689	12,245	8,001	20,846	13,494	8,497	31,991

\* Excluded from the divisional

Provinces during each month (from July to December) of the year 1870.

6																		7						
Total.			July.			August.			September.			October.			November.			December.			Total.			REMARKS.
Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	
3,151	1,381	3,532	14	11	25	32	19	51	33	21	54	37	30	67	58	38	91	51	30	81	230	145	375	* For 4 months. " 3 "
2,028	1,404	3,432	47	41	88	54	38	92	33	24	57	35	19	54	58	22	80	26	14	40	231	160	391	
549	390	939	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
162	74	236	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
789	594	1,383	30	23	53	36	21	57	28	19	47	31	23	54	40	25	65	30	28	58	156	140	296	
4,968	3,379	8,347	20	24	44	30	31	70	32	22	54	36	25	61	47	29	76	37	24	61	230	150	370	
1,768	1,600	3,368	15	10	25	18	16	34	12	09	21	08	07	15	06	06	12	21	15	36	64	55	119	
2,507	2,055	4,562	33	25	58	30	40	70	30	29	59	26	26	52	22	17	39	49	32	81	183	150	333	
2,279	1,595	3,874	43	25	68	37	20	57	45	31	76	40	33	73	33	26	59	42	27	69	247	176	423	
4,501	2,809	7,310	55	35	90	74	135	209	107	48	155	80	53	133	31	20	51	33	18	51	221	160	381	
2,114	1,027	3,141	18	12	30	19	10	29	23	10	33	22	18	40	24	19	43	20	14	34	131	106	237	
2,000	1,599	3,599	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
16,820	11,240	27,060	29	19	48	36	28	64	30	22	52	24	19	43	23	17	40	22	18	87	167	123	290	
1,870	1,747	3,617	25	21	46	35	21	56	27	18	45	27	22	49	51	28	79	50	27	77	234	143	377	
807	598	1,405	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
1,089	792	1,881	141	100	241	136	97	233	117	81	198	11	10	21	18	10	23	205	140	345	847	629	1,476	
635	481	1,116	21	18	39	20	18	38	26	20	46	39	21	60	50	29	78	49	33	84	200	141	341	
1,234	825	2,059	20	15	35	20	14	34	18	12	30	18	11	29	18	11	29	12	10	22	106	54	160	
1,002	610	1,612	19	13	32	27	19	46	18	12	30	31	16	47	28	12	39	33	22	55	150	96	246	
1,608	926	2,534	57	25	82	51	28	79	53	28	81	80	43	123	46	30	76	28	15	43	312	168	480	
7,509	4,537	12,046	31	21	52	33	22	55	30	20	50	41	24	65	58	20	78	33	23	61	210	134	344	
5,542	4,184	9,726	48	41	89	60	40	100	67	57	124	119	91	210	134	96	230	98	60	164	529	330	859	
1,404	804	2,208	28	20	48	30	19	49	33	24	57	20	12	32	46	26	73	29	18	37	124	124	248	
1,154	878	2,032	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
2,102	1,223	3,325	14	08	22	22	14	36	28	16	44	27	14	41	56	29	85	55	35	88	230	22	252	
1,281	823	2,104	03	20	23	48	43	91	41	04	66	43	100	...	...	...	...	...	...	...	...	...	...	
394	228	622	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
1,924	1,250	3,174	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
10,309	7,124	17,433	31	23	54	38	27	65	44	34	78	62	44	106	82	54	133	64	41	105	321	188	509	
1,538	1,099	2,637	16	12	28	18	14	32	14	12	26	20	16	36	26	18	20	29	19	48	125	91	216	
5,077	3,709	8,786	40	27	67	68	38	106	72	55	127	72	60	132	73	57	79	53	58	141	400	300	700	
3,684	2,642	6,326	78	61	139	89	64	153	112	77	189	109	74	183	111	79	190	120	87	207	620	442	1,062	
10,299	4,610	14,909	38	27	65	...	33	82	58	49	99	38	46	103	62	46	108	58	42	100	532	243	775	
918	629	1,547	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
2,890	1,735	4,625	15	12	27	14	11	25	70	09	25	22	14	36	18	11	20	19	14	33	80	401	150	
507	306	813	05	03	08	09	11	20	18	11	29	10	10	20	24	13	37	25	10	42	1	03	103	
314	187	501	30	15	45	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
204	109	313	21	25	46	37	32	69	24	21	45	44	20	64	32	16	48	23	17	40	200	150	350	
3,717	2,299	6,016	20	12	32	71	19	90	39	23	62	27	21	48	40	27	67	30	22	58	203	125	328	
2,630	1,951	4,581	00	55	121	58	48	106	45	36	81	102	52	144	96	74	45	116	364	270	636			
885	709	1,594	40	100	140	83	81	164	48	37	85	67	39	106	50	55	111	80	73	163	374	278	652	
758	552	1,310	01	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
4,183	3,212	7,395	38	30	68	32	24	56	35	27	62	46	34	80	43	35	78	55	40	95	359	191	550	
3,235	3,022	6,257	59	48	107	86	51	137	42	41	83	34	35	69	47	46	93	64	50	123	300	279	579	
806	461	1,267	42	18	60	29	18	47	10	14	33	24	00	33	41	23	64	23	10	33	179	94	273	
1,339	1,074	2,413	33	03	146	42	34	76	37	32	69	31	26	57	28	26	54	44	33	77	260	215	475	
5,473	4,587	10,060	01	44	108	40	39	85	34	32	66	31	26	57	42	36	78	40	41	90	263	219	482	
1,585	1,244	2,829	27	19	46	28	23	51	20	16	36	18	13	31	19	14	33	18	15	33	130	101	231	
3,484	1,990	5,474	31	16	47	45	33	78	35	28	63	26	25	51	22	18	41	24	19	43	180	136	316	
1,269	865	2,134	29	24	53	32	26	58	24	13	37	19	11	30	22	16	38	18	10	100	107	207		
978	807	1,785	71	59	130	60	51	111	46	37	83	51	46	91	51	47	98	70	68	139	87	226		
6,316	4,886	11,202	20	22	42	38	29	67	28	22	50	23	20	43	24	19	43	27	21	48	170	132	302	
received,	164	388	...	...	...	...	...	...	15	14	27	09	00	15	27	17	44	41	29	70	80	67	167	
224	519	1,130	33	79	112	45	38	83	36	45	81	43	30	74	30	17	47	45	31	78	285	242	527	
611	519	1,130	...	...	...	...	...	...	16	08	24	11	08	19	11	05	16	23	18	35	63	35	98	
250	132	382	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
242	183	425	07	33	40	30	28	58	42	38	80	48	38	86	24	20	44	18	13	31	219	161	380	
11	...	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
859	702	1,561	75	65	140	40	36	76	39	43	82	45	35	80	28	19	47	37	29	62	364	271	635	
380	246	626	...	...	...	...	...	...	28	19	47	19	18	33	20	18	38	46	29	78	115	80	195	
684	409	1,093	...	...	...	...	...	...	30	21	51	27	18	45	31	25	56	46	39	76	232	160	392	
108	187	355	...	...	...	...	...	...	85	16	94	51	35	86	77	51	128	...	...	...	...	...	...	
715	494	1,209	42	26	68	47	28	75	39	31	70	41	27	68	31	25	56	40	29	76	232	165	397	
70,157	50,246	1,20,403	32	23	55	37	28	65																

**ANNUAL FORM NO. III.—Deaths registered from different causes in the districts of the**

1	2	3	4			5			6			7			8					
Number.	Division.	Districts.	ESTIMATED POPULATION.			CHOLERA.			SMALL-POX.			FEVER.			BOWEL COMPLAINT.			SUICIDE.		
			Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
1	Bhaugulpoore.	Bhaugulpoore	...	...	851,879	18	7	25	1	4	5	1,648	1,004	2,742	95	41	136	1	...	1
2		Monghyr	...	...	878,165	371	271	642	8	23	31	1,154	777	1,931	107	83	190	3	...	6
3		Purneah	...	...	879,117	...	...	...	...	...	...	465	291	756	22	38	60	1	...	1
4		Rajmahal	...	...	846,000	...	...	...	...	...	...	143	89	232	...	...	...	...	...	...
5		Dooghur, S. P.	...	...	424,855	28	10	38	10	12	22	615	479	1,094	32	35	67	...	...	...
		Total	...	...	2,251,919	412	288	700	26	41	67	3,417	2,347	5,764	294	156	450	7	9	16
6	Patna.	Patna	...	...	2,814,919	356	285	641	21	24	45	724	638	1,362	206	203	409	7	23	30
7		Gya	...	...	1,967,392	154	135	289	40	95	135	1,711	1,325	3,036	178	73	251	8	24	32
8		Chumparan	...	...	1,114,768	201	173	374	43	13	56	1,273	879	2,152	327	240	567	...	...	...
9		Sarun	...	...	1,372,429	340	302	642	58	52	110	1,762	1,083	2,845	593	325	918	2	12	14
10		Shahabad	...	...	1,611,231	103	68	171	16	9	24	1,731	1,292	3,023	71	30	101	1	1	2
11		Tirhoot	...	...	1,900,068	248	181	429	16	53	74	1,203	715	1,918	601	287	888	11	...	13
		Total	...	...	97,03,797	1,402	1,098	2,500	193	251	444	8,394	5,890	14,284	1,938	1,158	3,096	28	67	95
12	Rajshahye.	Rajshahye	...	...	802,905	42	26	67	7	21	28	1,554	879	2,433	57	23	80	3	14	17
13		Bogra	...	...	422,185	...	...	...	...	...	...	781	516	1,297	22	22	44	2	1	3
14		Dinajpoore	...	...	129,846	27	12	39	54	55	109	735	533	1,268	48	50	98	3	2	5
15		Makhal	...	...	307,557	9	9	18	9	10	19	523	327	850	15	6	20	1	1	2
16		Moorsheadabad	...	...	1,104,641	65	35	100	6	8	14	853	612	1,465	92	68	160	8	10	18
17	Rungpoore.	Patna	...	...	641,390	14	...	14	1	5	6	719	378	1,097	45	18	63	5	22	27
18		Rungpoore	...	...	511,388	34	...	54	162	80	242	1,125	617	1,742	51	19	70	...	...	...
		Total	...	...	3,557,155	191	101	292	239	179	418	5,699	3,376	9,075	308	181	489	20	43	63
19	Burdwan.	Burdwan	...	...	1,040,154	45	31	76	7	18	25	4,698	3,433	8,131	443	385	827	6	10	16
20		Banooorah	...	...	722,106	33	34	67	...	...	...	1,114	697	1,791	116	71	186	3	4	7
21		Boorboom	...	...	912,259	4	...	...	...	...	...	730	704	1,434	41	55	96	3	...	...
22		Hoooghly	...	...	1,048,745	83	40	123	6	8	14	1,704	950	2,714	137	107	244	9	2	10
23		Serampore	...	...	324,656	37	10	47	...	...	...	966	617	1,583	133	119	252	8	9	18
24	Midnapore.	Howrah	...	...	535,238	4	5	9	...	...	...	251	197	448	16	8	24	2	2	4
25		Midnapore	...	...	1,200,000	21	27	48	17	7	24	1,104	716	1,910	242	250	502	13	7	20
		Total	...	...	3,144,701	148	115	263	13	21	34	8,512	5,037	14,190	848	685	1,533	26	25	51
26	Presi- dency.	Nudda	...	...	1,224,909	15	11	26	6	5	11	1,132	716	1,848	30	32	71	11	30	50
27		Jessore	...	...	1,276,196	43	21	64	13	6	19	4,590	817	7,923	74	22	96	7	10	17
28		24-Pergunnahs	...	...	692,857	92	83	175	14	15	29	2,705	1,809	4,614	517	230	537	17	17	34
		Total	...	...	3,093,922	150	115	265	33	26	59	8,333	6,032	14,365	430	274	704	35	66	101
29	Dacca.	Dacca	...	...	1,032,308	15	7	22	27	17	44	562	321	883	60	40	100	20	15	35
30		Backergunge	...	...	1,131,452	45	26	71	39	31	70	2,431	1,375	3,806	50	42	92	11	11	22
31		Furreedpore	...	...	690,840	2	...	2	...	2	2	432	254	686	16	14	30	6	5	11
32		Mymensing	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
33		Sylhet	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
34	Chitta- gaon.	Cachar	...	...	131,000	3	4	7	1	1	2	210	189	375	18	13	31	...	...	...
		Total	...	...	1,832,292	50	30	80	40	34	74	3,070	1,788	4,857	84	49	133	17	10	27
35	Orissa.	Chittagong	...	...	722,083	138	88	226	14	14	32	2,057	1,578	3,635	77	64	141	2	1	3
36		Noakhally	...	...	254,965	25	22	47	...	...	...	732	566	1,298	17	7	24	...	2	2
37		Tipperah	...	...	700,500	15	12	27	2	6	8	584	425	1,009	37	13	50	1	5	6
		Total	...	...	1,677,548	178	122	300	20	20	40	3,373	2,569	5,942	131	84	215	3	8	11
38	Chitta- gaon.	Cuttack	...	...	1,072,463	300	170	470	48	46	94	1,177	1,282	2,459	500	361	870	21	44	65
39		Balasore	...	...	500,000	40	32	72	1	...	1	403	221	624	114	74	188	3	2	5
40		Pooree	...	...	500,983	514	212	726	10	9	19	443	582	1,025	311	194	505	12	14	26
		Total	...	...	2,073,446	700	423	1,123	59	55	114	2,028	1,865	3,893	1,036	699	1,705	36	60	96
41	Chitta- gaon.	Hazareebagh	...	...	1,221,178	160	114	274	29	12	41	1,073	632	1,705	128	110	238	5	9	14
42		Lohardugga	...	...	1,353,707	369	207	576	73	64	137	1,480	1,227	2,707	118	66	184	15	10	25
43		Maunbhoom	...	...	705,555	113	106	219	5	15	20	781	499	1,280	155	90	245	4	2	6
44		Singbhoom	...	...	286,210	34	27	61	25	23	48	500	490	990	131	81	212	14	12	26
		Total	...	...	3,566,645	663	544	1,207	127	104	231	3,840	2,908	6,748	589	397	986	38	33	71
45	Assam.	Durrung	...	...	247,915	10	8	18	...	...	...	177	133	310	28	14	42	...	...	...
46		Nowroong	...	...	214,610	32	26	58	16	6	22	862	331	713	173	115	287	...	...	...
47		Soanbutor	...	...	596,206	6	3	9	...	...	...	98	54	152	37	27	64	3	2	5
48		Kamroop	...	...	94,665	...	...	...	4	1	5	123	120	243	48	50	98	...	...	...
49		Luckimpore	...	...	...	...	...	...	...	...	...	7	...	...	...	...	...	...	...	...
50	Cochin- Nehar.	Khasi & Jynteah Hills	...	...	3,345	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Total	...	...	309,275	23	26	49	20	7	27	455	471	926	221	145	366	...	...	...
51	Cochin- Nehar.	Julpisore	...	...	231,878	21	5	26	5	18	23	210	148	358	53	24	77	5	...	5
52		Gowalparah	...	...	204,461	15	15	30	19	15	34	474	318	792	75	41	121	...	1	1
53		Darjeeling	...	...	50,000	1	...	1	...	...	...	139	68	207	21	17	38	...	1	1
		Total	...	...	294,461	13	15	28	19	15	34	474	318	792	75	41	121	...	1	1
		Grand Total	...	...	31,710,131	3,929	2,877	6,806	701	768	1,544	47,504	35,351	80,855	5,954	3,514	9,708	211	337	548

Excluded from the divisional.

*Lower Provinces, during 6 months (from July to December) of the year 1870.*

INJURIES.									ALL OTHER CAUSES.			TOTAL DEATHS FROM ALL CAUSES.			RATIO OF DEATHS PER 1,000 OF POPULATION.									REMARKS.
WOUNDING.			ACCIDENT.			SNAKE-BITE OR KILLED BY WILD BEASTS.									FROM ALL CAUSES.									
Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Cholera.	Small-pox.	Fever.	Sorel complaint.	Injuries.	Male.	Female.	Total.		
3	3	6	62	51	113	69	52	121	259	125	384	2,151	1,881	3,532	02	01	288	14	28	226	145	371	For 5 months. " 3 "	
10	5	15	60	40	100	105	73	178	160	128	288	2,028	1,404	3,432	73	04	230	23	33	231	180	301		
3	1	4	8	12	20	10	11	21	37	16	53	540	860	900	01	21	85	07	06	62	41	103		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
13	8	21	120	95	215	180	146	326	488	289	777	1,908	3,379	8,347	31	03	256	20	20	220	150	370	For 5 months. " 3 "	
25	15	40	64	53	119	56	82	138	300	250	550	1,768	1,680	3,334	23	02	48	15	13	64	85	110		
5	2	7	104	89	193	61	70	131	240	234	474	3,037	2,053	4,500	31	10	82	19	27	138	150	308		
5	5	10	43	47	90	13	20	33	309	231	540	2,279	1,506	3,785	41	06	92	02	15	47	175	422		
3	4	7	71	102	173	19	20	39	104	67	171	2,114	1,027	3,741	11	01	187	06	14	131	106	231	For 5 months. " 3 "	
4	6	10	150	140	290	57	48	105	415	213	628	2,670	1,504	4,254	21	04	106	47	24	147	87	231		
47	35	82	508	532	1,040	200	291	551	3,056	1,924	4,982	15,829	11,246	27,075	26	05	140	31	15	187	123	290		
3	3	6	59	28	87	108	193	84	48	132	1,879	1,147	3,023	08	03	303	10	35	234	148	377	For 4 months. " 3 "		
3	3	6	12	14	26	19	22	41	14	11	27	807	508	1,405	01	01	295	10	18	246	181		427	
1	1	2	15	15	30	42	33	75	78	51	129	1,085	792	1,877	30	84	104	80	127	847	629		1476	
7	8	15	81	74	155	47	58	105	81	58	139	835	431	1,266	06	06	276	07	19	206	141		347	
3	...	...	37	27	64	116	116	214	150	100	250	1,018	510	1,528	01	01	171	10	44	150	90	250	For 5 months. " 1 month. " 5 months.	
...	...	...	33	17	50	43	32	74	210	111	320	1,048	926	2,564	11	47	341	13	25	312	108	480		
17	18	35	100	111	271	381	458	819	615	414	1,029	7,500	4,837	12,337	09	12	25	13	33	210	184	344		
2	3	5	18	5	18	38	28	66	321	256	577	5,512	4,184	9,696	07	02	800	80	10	524	399	927		
2	1	3	10	5	15	18	22	38	110	87	197	1,414	894	2										

total, the returns for the half-year being incomplete.

ANNUAL FORM NO. IV.—Deaths registered according to Age in the different Districts of the Lower Provinces during six months (from July to December) of the year 1870.

1	2	3	4										5	6
No.	DIVISION.	DISTRICTS.	Born dead.	Not exceeding one year.	1 to 6.	6 to 12.	12 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	Exceeding 60.	Total.	REMARKS.
1	Bhaugulpore	Bhaugulpore ...	3	79	237	252	253	829	577	390	479	404	3,582	* For 5 months. * For 3 months.
3		Monghyr ...	5	145	397	282	408	542	464	395	454	340	3,432	
4		Purneah ...	12	45	83	173	142	164	157	109	16	8	909	
4		Rajmehal ...	2	4	41	37	21	41	31	19	29	11	238	
5		Deoghur ...	19	51	149	114	110	206	211	217	105	111	1,383	
		Total	27	275	803	648	777	1,571	1,232	1,011	1,128	835	6,947	
6	Patna	Patna ...	70	462	283	346	560	51	423	314	323	302	3,334	* For 4 months.
7		Gya ...	13	271	513	429	439	730	739	636	403	328	4,563	
8		Chumpanun ...	35	310	338	250	1,458	..	.....	1,444	.....	.....	3,874	
9		Saran ...	79	438	608	433	591	1,182	1,080	1,004	874	1,061	7,810	
10		Shahabad ..	55	287	446	313	283	576	509	461	368	455	3,741	
11		Tirhoot ...	23	114	313	392	136	881	607	682	436	191	4,354	
		Total	272	1,570	2,409	2,200	3,953	3,420	3,536	4,554	2,468	2,577	27,075	
12	Rajshahye	Rajshahye ...	15	120	329	373	338	589	518	398	296	167	3,023	* For 4 months.
13		Bogra ...	6	71	106	131	172	230	230	173	154	129	1,405	
14		Dunagore ...	.....	51	153	133	267	383	349	249	144	123	1,877	
15		Maldah ...	6	53	119	133	94	192	177	90	98	109	1,066	
16		Mooredahad ..	32	109	180	228	325	318	312	277	286	112	2,169	
17		Pubna ...	5	72	191	231	195	251	254	149	134	138	1,618	
18		Rangpore ..	14	65	208	221	237	483	421	415	270	240	2,394	
		Total	72	478	1,160	1,314	1,471	2,220	2,091	1,478	1,147	916	12,337	
19	Burdwan	Burdwan ...	63	278	703	1,025	1,165	1,533	1,310	1,205	1,168	1,233	9,726	* For 4 months. * For 3 months. * For 1 month. * For 5 months.
20		Bancoorah ...	3	47	125	232	211	374	338	269	247	332	2,298	
21		Beerhoom ...	13	42	129	184	227	329	288	201	302	277	2,032	
22		Hoghtly ...	16	57	174	370	426	503	538	402	384	383	3,325	
23		Scrampore ...	13	45	190	255	344	314	267	245	207	224	2,084	
24		Howrah ...	.....	1	13	34	49	270	131	.....	.....	.....	512	
25		Midnapore ..	16	91	279	277	431	597	391	355	345	481	3,174	
		Total	162	380	1,062	1,627	1,862	2,442	2,186	1,946	1,769	1,968	17,433	

26	Nedda .....	115	224	253	334	444	365	330	278	266	2,637	
27	Tesoro .....	83	903	1,057	1,132	1,344	1,250	906	863	776	8,846	
28	24-Perumabha .....	39	336	623	730	935	857	715	627	688	6,326	
	Total .....	122	833	1,310	2,035	2,224	2,221	2,011	1,775	1,739	17,869	
29	Dacca .....	2	102	124	136	194	219	225	168	216	1,546	
30	Baderunge .....	15	178	406	462	678	677	567	530	533	4,631	
31	Furcedpore .....	2	9	65	77	94	215	120	124	66	833	
32	Mymensing .....											
33	Sylhet .....											
34	Cochar .....	11	36	73	37	28	79	92	32	25	462	
	Total .....	28	219	564	596	642	971	799	766	622	6,016	
35	Chittagong .....	30	182	333	343	603	627	536	549	365	4,461	
36	Noakholy .....	9	57	194	143	163	253	201	144	170	1,004	
37	Tippurah .....	14	54	78	100	212	180	160	143	218	1,31	
	Total .....	53	293	655	686	922	1,049	887	836	766	7,395	
38	Cuttack .....	134	1,130	733	363	639	777	697	579	549	6,260	
39	Balasore .....	53	53	142	228	276	149	130	99	72	1,337	
40	Poore .....	90	185	172	139	413	250	241	234	200	2,413	
	Total .....	224	1,378	1,068	735	1,357	1,206	1,058	993	781	10,630	
41	Hazarrebaugh .....	28	289	384	275	383	378	392	274	293	2,330	
42	Lohardaga .....	37	333	672	690	705	652	585	445	366	4,464	
43	Manuhoom .....	46	136	245	264	271	239	210	221	231	2,134	
44	Singhloom .....	91	244	279	194	130	163	208	136	100	1,736	
	Total .....	202	1,020	1,590	1,293	1,160	1,322	1,165	1,196	885	11,202	
45	Durrung .....											
46	Nowgong .....	3	42	45	16	29	67	62	36	36	398	
47	Sebsaugor .....	4	43	220	113	114	114	107	122	56	1,130	
48	Kamroop .....	9	39	41	23	26	61	60	36	32	382	
49	Luckimpore .....	5	39	61	49	46	62	64	26	19	435	
50	Khasi and Jynteah Hills .....				2	8	1				11	
	Total .....	9	81	291	162	194	176	261	164	75	1,635	
51	Jalpigore .....	14	40	66	55	67	57	116	86	30	636	
52	Gowalparah .....	48	130	77	139	139	179	148	133	140	1,300	
53	Darjeeling .....	8	15	29	14	29	31	37	23	31	326	
	Total .....	19	48	129	77	136	179	148	133	140	1,299	
	Grand total .....	1,130	6,066	11,562	11,107	14,713	17,761	16,451	12,143	11,077	120,233	

\* Excluded from the divisional total, the returns for the half-year being incomplete.

\* For 4 months.  
 \* For 4 months.  
 \* For 4 months.  
 \* For 5 months.  
 \* For 5 months.  
 \* For 5 months.

ANNUAL FORM No. VI.—Deaths registered from Cholera in the districts in the Lower Provinces during each month from July to December of the year 1870.

[illegible]

[illegible]

\* Excluded from the divisions total, the returns for the half-year being incomplete.



ANNUAL FORM No. VII.—Deaths registered from Small-pox in the districts of the Lower Provinces during each month (from July to December) of the year 1870.

1	2	3	4		5		6		7									
Number.	Divisions.	DISTRICTS.	Estimated population.		July.		August.		September.		October.		November.		December.		Total.	REMARKS.
			Male.	Female.	Male.	Female.	Total.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.		
1	Bhargulpore...	Bhargulpore	...	...	931,579	...	...	...	...	...	...	...	...	...	...	...	...	For 5 months.
2		Moneslyr	...	...	875,185	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
3		Purneah	...	...	873,117	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
4		Rajmahal	...	...	248,000	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
5		Deoghur	...	...	424,855	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
6	Patna	Total	...	...	2,254,919	...	...	...	...	...	...	...	...	...	...	...	...	For 5 months.
7		Patna	...	...	2,254,919	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
8		Gya	...	...	2,254,919	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
9		Chumpan	...	...	1,367,382	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
10		Saran	...	...	916,738	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
11	Rajshahye	Shahabad	...	...	1,472,429	...	...	...	...	...	...	...	...	...	...	...	...	For 5 months.
12		Tirhoot	...	...	1,411,231	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
13		...	...	...	1,800,065	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
14		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
15		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
16	Rajshahye	Total	...	...	9,785,797	...	...	...	...	...	...	...	...	...	...	...	...	For 5 months.
17		Rajshahye	...	...	9,785,797	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
18		Bogra	...	...	9,785,797	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
19		Dinapore	...	...	9,785,797	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
20		Malda	...	...	9,785,797	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
21	Burdwan	Moorsheabad	...	...	9,785,797	...	...	...	...	...	...	...	...	...	...	...	...	For 5 months.
22		Pabnah	...	...	9,785,797	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
23		...	...	...	9,785,797	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
24		...	...	...	9,785,797	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
25		...	...	...	9,785,797	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
26	Burdwan	Total	...	...	3,157,155	...	...	...	...	...	...	...	...	...	...	...	...	For 5 months.
27		Burdwan	...	...	3,157,155	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
28		Burdwan	...	...	3,157,155	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
29		Burdwan	...	...	3,157,155	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
30		Burdwan	...	...	3,157,155	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
31	Burdwan	Total	...	...	3,144,701	...	...	...	...	...	...	...	...	...	...	...	...	For 5 months.
32		Burdwan	...	...	3,144,701	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
33		Burdwan	...	...	3,144,701	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
34		Burdwan	...	...	3,144,701	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.
35		Burdwan	...	...	3,144,701	...	...	...	...	...	...	...	...	...	...	...	...	" 3 ditto.



ANNUAL FORM No. VIII.—Deaths registered from Fever in the districts of the Lower Provinces, during each month (from July to December) of the year 1870.

1	2	3	4		5		6		7		8																
Number.	Division.	Districts.	Estimated population		July.		August.		September.		Total.																
			Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.																	
1	Bhagulpore..	Bhagulpore	...	...	881,879	67	44	111	120	320	253	155	391	297	245	498	741	392	247	639	1,648	1,094	2,742	* For 5 months " 3 do.			
2		Meerut	...	...	874,185	123	155	338	145	338	145	138	244	211	111	226	428	161	94	255	257	1,154	777		1,931		
3		Bijnor	...	...	870,117	Retn. not recd.	...	...	40	40	97	63	46	128	84	21	117	117	49	106	465	268	731		1,201		
4		Banmota	...	...	424,855	79	73	152	82	64	146	89	84	153	104	77	181	145	116	105	221	615	476		1,091		
5		Deoghar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...		
6	Patna	Total	...	...	2,254,819	329	272	601	468	388	804	467	825	702	612	1,045	874	533	1,407	689	448	1,117	3,417	2,347	5,764	* For 5 months " 3 do.	
7		Patna	...	...	2,814,919	120	78	198	170	180	850	142	122	294	116	82	198	95	83	182	81	71	152	724	698		1,350
8		Gya	...	...	1,827,392	270	140	430	459	306	725	272	226	498	273	282	555	292	206	428	225	145	370	1,711	1,325		3,036
9		Chumpran...	...	...	918,758	153	79	213	164	220	323	145	135	304	154	155	315	214	162	378	216	145	559	1,279	949		2,145
10		Savari	...	...	1,272,629	285	155	440	250	250	687	355	188	838	269	172	432	251	160	450	221	135	356	1,762	1,058		2,820
11	Rajshahye	Shahabad	...	...	1,411,211	153	101	254	254	202	436	353	269	643	314	257	571	347	296	635	290	186	476	1,721	1,292	3,013	* For 4 months For 5 months For 1 month.
12		Patna	...	...	1,800,789	141	89	230	168	140	267	133	99	252	132	84	218	102	111	308	437	221	648	1,203	715	1,918	
13		Total	...	...	9,798,797	1,063	682	1,744	1,577	1,170	2,745	1,508	1,043	2,540	1,275	994	2,589	1,391	1,027	2,413	1,381	874	2,555	3,394	3,890	14,284	
14		Rajshahye	...	...	802,803	131	91	222	228	123	351	166	97	265	316	158	474	363	206	589	350	204	554	1,454	879	2,453	
15		Meerut	...	...	432,185	116	87	163	116	79	105	107	75	183	101	60	191	141	106	217	224	165	379	795	563	1,377	
16	Burdwan	Malda	...	...	307,527	42	26	68	42	36	78	61	39	100	99	43	142	142	84	226	137	90	224	523	327	845	* For 4 months For 5 months For 1 month.
17		Meerut	...	...	1,043,715	122	87	209	140	131	261	137	88	225	164	104	270	175	114	289	115	94	211	683	612	1,465	
18		Patna	...	...	641,380	49	17	66	113	59	172	69	39	99	132	70	225	153	63	221	153	154	317	719	373	1,097	
19		Burdwan	...	...	511,388	146	60	206	143	53	226	173	77	250	377	170	517	181	115	296	106	112	217	1,128	617	1,742	
20		Total	...	...	3,557,135	508	338	894	782	501	1,285	713	447	1,120	1,209	687	1,946	1,155	663	1,543	1,114	800	1,914	5,568	3,876	9,945	
21	Burdwan	Burdwan	...	...	1,042,154	353	305	658	453	347	800	552	465	1,017	1,098	904	1,002	1,302	928	2,250	910	606	1,616	4,608	3,468	8,121	* For 4 months For 5 months For 1 month.
22		Meerut	...	...	722,166	116	76	193	130	83	238	182	129	321	165	89	254	347	175	482	184	110	294	1,114	667	1,781	
23		Meerut	...	...	912,259	85	41	126	168	87	252	182	112	346	254	109	448	313	260	566	207	119	326	988	730	1,716	
24		Meerut	...	...	1,043,715	122	87	209	140	131	261	137	88	225	164	104	270	175	114	289	115	94	211	683	612	1,465	
25		Meerut	...	...	324,466	44	36	80	107	95	202	352	223	674	179	107	226	153	63	221	153	154	317	719	373	1,097	
26	Burdwan	Meerut	...	...	553,258	Retn. not recd.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	* For 4 months For 5 months For 1 month.
27		Meerut	...	...	1,200,000	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
28		Meerut	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
29		Total	...	...	8,144,701	554	450	974	788	522	1,290	888	706	1,642	1,460	973	2,453	2,147	1,385	3,352	1,634	1,035	2,669	6,512	4,687	14,192	
30																											



ANNUAL FORM No. IX.—Deaths registered from Borel complaints in the districts of the Lower Provinces, during each month (from July to December) of the year 1870.

[illegible]

28	Presidency ...	Nuddies	1,234,569	12	8	20	5	8	13	4	3	7	7	4	11	7	6	13	4	3	7	39	33	71
29		Jessore	1,276,186	23	8	301	10	6	16	15	2	17	7	4	11	7	3	10	7	5	12	74	56	130
30		24-Murgumab	662,357	47	4	83	69	58	127	58	51	109	52	37	80	...	...	...	91	33	13	317	230	547
31		Total	3,063,922	87	51	133	84	72	156	77	33	110	66	45	111	53	32	90	67	41	98	434	274	704
32	Dacca ...	Dacca	1,092,306	Return not received.	6	11	...	3	9	11	3	14	11	8	19	12	11	23	20	15	33	60	40	100
33		Backergunge	1,154,452	6	1	11	...	2	21	10	5	15	6	2	8	8	3	14	1	2	3	50	22	72
34		Furzedpore	600,940	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35		Fymensingh	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
36		Sylhet	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
37		Cachar	181,000	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
38		Total	1,832,292	6	6	12	21	3	24	13	13	25	20	9	29	15	10	25	10	6	18	64	49	133
39	Chittagong ...	Chittagong	722,083	17	15	32	9	4	13	6	6	12	14	9	23	10	14	24	21	16	37	77	64	141
40		Coatully	254,965	3	3	6	2	2	4	5	1	6	4	2	13	2	3	7	...	...	...	...	...	...
41		Tippurah	700,500	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
42		Total	1,677,548	20	18	38	11	6	17	31	9	40	29	12	41	16	17	38	23	22	46	131	84	215
43	Orissa ...	Cuttack	1,072,463	95	62	137	115	103	215	77	61	138	49	31	80	70	43	113	103	61	164	500	361	870
44		Balasore	600,000	43	28	76	33	16	54	23	21	44	30	11	41	41	20	61	50	18	54	216	114	330
45		Pooree	500,963	55	34	89	66	48	115	65	44	109	55	24	79	23	15	41	44	39	73	311	194	505
46		Total	2,073,426	198	124	322	213	161	374	165	126	291	134	66	200	137	78	215	183	108	291	1,036	639	1,795
47	Chota Nagore	Hazaribagh	1,921,173	33	24	57	39	29	68	23	23	45	16	18	34	10	7	17	8	9	17	128	110	238
48		Lohardugga	1,231,311	12	12	17	11	9	39	29	23	62	25	13	13	13	10	23	11	6	19	113	66	184
49		Manbhoom	733,151	34	16	45	49	36	55	27	21	35	9	7	16	14	8	23	39	12	43	153	99	243
50		Singbhoom	289,210	34	17	51	30	15	45	25	23	48	27	23	50	23	30	53	34	25	67	188	131	319
51		Total	3,693,645	107	63	170	129	89	219	113	77	193	77	61	133	70	35	125	93	53	145	539	297	966
52	Assam ...	Durrung	247,915	Return not received.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
53		Nowong	214,610	49	38	87	20	13	33	27	2	47	3	17	42	19	12	31	28	15	4	36	14	48
54		Sachsepur	898,208	Return not received.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
55		Kanroon	91,665	13	11	21	10	...	31	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...
56		Bachimpore	8,345	Return not received.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
57		Khasi and Jynteah Hills	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
58		Total	3,093,275	62	49	111	22	16	39	29	21	50	42	23	64	21	15	36	26	15	41	231	145	360
59	Cooch Behar	Fulpooree	231,378	Return not received.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
60		Gawalparah	294,431	16	7	23	9	...	7	3	2	5	4	6	9	8	8	16	15	5	20	33	24	57
61		Darjeeling	39,000	Return not received.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
62		Total	294,431	16	7	23	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
63		Grand total	31,712,131	954	562	1,496	1,036	706	1,733	973	633	1,699	795	331	1,326	711	468	1,169	796	567	1,303	5,364	3,814	9,768

\* Excluded from the divisional total, the returns for the half-year being incomplete.



(RESOLUTION.)

JUDICIAL DEPARTMENT.

SANITATION.

*Calcutta, the 2nd July 1872.*

READ—

A letter No. 371, dated the 12th December 1871, from the Sanitary Commissioner for Bengal, forwarding his annual report for 1870-71.

1. This report was not received in the Bengal Office till the close of 1871, and its publication is very late, owing partly to its submission in manuscript for the inspection of the Sanitary Commissioner with the Government of India, and partly to other causes, such as delays in the press and in the preparation of the charts in the Surveyor-General's Office.

2. The Lieutenant-Governor regrets to find that the report contains hardly any matter of interest or importance, and that very little advertence has been had to the suggestions of Dr. Cunningham as to the proper character of a sanitary report contained in his review of those for 1869, and in the orders of the Government of India No. 21, dated 6th July 1871. No attention seems also to have been paid to the Government of India's orders, No. 338, dated 30th July 1869, on the same subject. No proper account is given of the Sanitary Commissioner's own proceedings, and the bulk of the report is filled up with extracts from the reports of Civil Surgeons in regard to conservancy matters, on which action can only be taken locally, and much of which it was very unnecessary to submit to Government. The Sanitary Commissioner has already been ordered to dispose of such matters by calling the attention of the local officers to points that it seems to him desirable to notice.

3. The statistics of mortality are obviously quite unreliable. This is a matter on which the Lieutenant-Governor has already expressed his views to the Government of India. The tables now submitted it was indeed hardly worth while to print. Some district totals are left out; the total population of Bengal is put down at 31,700,000, out of which only one person in 250 (four per mille) died during the year! The registration system was, it is true, incomplete over some of the area, but the results are in fact not reliable anywhere. The way in which form I of the appendix has been prepared is in other respects not creditable. Acres and square miles are hopelessly confused in columns 5 and 6, and deliberately totalled without, apparently, any suspicion of incongruity.

4. On the whole the Lieutenant-Governor does not find that he can profitably pass any orders on the report, but directs its distribution as usual.

ORDER.—Ordered, that a copy be forwarded to the Sanitary Commissioner for information.

By order of the Lieutenant-Governor of Bengal,

A. MACKENZIE,

*Offg. Secretary to the Govt. of Bengal.*

No. 2854.

is forwarded to the Sanitary Commissioner for information.

By order of the Lieutenant-Governor of Bengal,

A. MACKENZIE,

*Offg. Secretary to the Govt. of Bengal.*

CALCUTTA,

*The 2nd July 1872.*

W. E. B.





REPORT



OF THE

SANITARY COMMISSIONER FOR BENGAL,

FOR THE YEAR 1871.

WITH APPENDIX.

CHARLES J. JACKSON, M. D.,

*Offg. Sanitary Commissioner for Bengal.*

Calcutta:

PRINTED AT THE CALCUTTA CENTRAL PRESS COMPANY, LIMITED.

5, COUNCIL HOUSE STREET.

1873.



# TABLE OF CONTENTS.

## SECTION I.

### *Vital Statistics.*

	Page.		Page.
Unreliability of Bengal returns ...	3	Want of harmony between mortuary* and census returns ...	7
Comparison with those of England ...	3	Causes of failure of registration in Bengal ...	7
Districts of greatest and least efficiency of registration ...	4	Remarks of Civil Surgeons on mortuary statistics ...	8
Special neglect in registering female deaths ...	4		
" " infant mortality ...	5		

## SECTION II.

Registered Mortality from all causes ...	11	Relief measures ...	29
Months of greatest and least mortality ...	11	Fever in Midnapore ...	29
(a) CHOLERA—		Alleged contagious fever in Dacca ...	30
Season of greatest and least prevalence ...	11	Fever in Darjeeling ...	32
Divisional and district mortality from this cause ...	11	Dr. Duka's views on its etiology ...	32
Districts which suffered most ...	12	Typhoid fever at Darjeeling ...	33
District cholera reports ...	14	(d) BOWEL COMPLAINTS—	
Difficulty of preparing cholera map for 1871 ...	14	Total mortality from this cause ...	34
(b) SMALL-POX—		Monthly Mortality ...	34
Mortality from, in 1871, understated ...	21	Districts of greatest prevalence ...	34
Diminished prevalence in 1871 ...	21	(e) INJURIES—	
District reports of small-pox ...	21	Suicide, mortality from ...	34
(c) FEVER—		" preponderance of female suicides ...	34
Total mortality ...	24	Comparison of districts as regards suicide ...	35
Monthly ditto ...	24	Wounding ...	35
Unusual prevalence and late persistence of fever ...		Accidents ...	35
Typhoid fever at Dacca and Kassalong ...		Snake-bite ...	35
District fever reports ...		Gross mortality from ...	35
Fever in Burdwan town ...		Divisional ditto compared ...	35
" " district ...		Districts of greatest mortality from snake-bite ...	35
Its alleged causes ...		Ditto ditto least ditto ...	35
Relief measures ...		(f) OTHER DISEASES—	
Fever in Beerbhoom ...		Other causes of mortality ...	35
		Under registration of these diseases ...	35

## SECTION III.

### *Meteorology.*

Atmospheric pressure ...	36	Rainfall ...	37
Temperature of air ...	36	Wind ...	37
" solar radiation ...	37	Meteorological records of 15 stations ...	39
Humidity ...	37	General summary ...	44
Serenity ...	37		

## SECTION IV.

### *Food Supply.*

Want of information ...	45	Unreliability of Gazette returns ...	45
-------------------------	----	--------------------------------------	----

## SECTION V.

### *Personal Proceedings.*

Inspection by Dr. D. B. Smith ...	46	Dr. A. J. Payne's Report on fever at Burdwan ...	46
" Dr. A. J. Payne ...	46		
Reports submitted ...	46		

## SECTION VI.

### *Sanitary Progress.*

Scheme for obtaining accurate vital statistics ...	49	The Hooghly Drainage Act ...	50
Act IV. of 1871 ...	50	District Sanitary Reports ...	51
Poorse Lodging House Bill ...	50	Town improvements ...	51

## APPENDIX.

District monthly deaths from cholera ...	54	District monthly deaths from bowel complaints ...	57
" " small-pox ...	55	" " injuries ...	58
" " fever ...	56	" " other causes ...	59



FROM

CHARLES J. JACKSON, Esq., M.D.,  
*Offg. Sanitary Commissioner for Bengal,*

TO

THE SECRETARY TO THE GOVERNMENT OF BENGAL,  
JUDICIAL DEPARTMENT.

*Dated Calcutta, the 21st December, 1872.*

SIR,

I HAVE the honor to submit, for the information of His Honor the Lieutenant-Governor of Bengal, the Sanitary Report of the Bengal Province for the year 1871.

The Report is a simple compilation of materials supplied to my office by the Civil Surgeons of the Province, and, notwithstanding the untrustworthiness of the Mortuary Registration, does, I think, convey a very fair notion of the relative prevalence of the diseases to which the mortality of the year has been due.

I am extremely sorry that there has been so much delay in its submission; it has been due mainly to broken health, frequent interruption, constantly recurring difficulties connected with imperfect or erroneous Statistics, and lately to some extent to a desire to make use of the finally-corrected Census Returns. I believe that, aided by this year's experience of the work involved, there will be no such delay as regards the report for the current year, but that it will be forwarded as promised on the 15th April.

I have the honor to be,

SIR,

Your most obedient servant,

C. J. JACKSON, M.D.,  
*Offg. Sanitary Commissioner for Bengal.*



# ANNUAL REPORT

OF THE

## SANITARY COMMISSIONER FOR BENGAL,

For 1871.

### SECTION I.

#### VITAL STATISTICS.

THE annual statements in the prescribed form were submitted on the 15th July, with the remark that they were utterly unreliable, and could not be regarded as even approximately true.

Whether considered with reference to population, area, sex, age, or mortality and its causes, the result was thoroughly unsatisfactory; it was only too apparent that error tainted every element of their composition, and rendered them utterly valueless for any scientific purpose whatever.

The population, much over-estimated in one instance (Sub-division Behar), was in many others much below the mark, and was known in every case to be stated as a mere matter of guess, having no pretension to accuracy. In previous years, attention had been directed by my predecessor to absurdities in the returns under this head, but it was considered undesirable to make any changes till the results of the census, for which arrangements were then in progress, should become available, and guarantee the correctness of the substituted figures.

The finally-corrected census returns have not yet been published; but from statements kindly supplied by Mr. Beverley, from time to time, enough can be gathered to enable one to form a tolerably correct notion of the population.

The most recent estimate of the population of Bengal was 42,000,000; from the census returns, however, it would appear to be about one-half more, and may be fairly set down as at least 65,000,000.

On this estimate, which cannot be far wrong, I propose, by a rough comparison of the mortuary statistics of Bengal with those compiled by the Registrar-General in England, to broadly indicate the extent and kind of error which pervades them: to those conversant with life statistics this is apparent enough, but as I am informed that many of the officers engaged in their collection and preparation here do not possess this knowledge (which is altogether special), I think that such a comparison will be attended with advantage, and the more glaring the resulting absurdity, the greater will be the likelihood that those concerned will exercise the necessary check and supervision that has hitherto been apparently greatly neglected.

In 1870, the population of England being 22,457,366, the registered mortality, exclusive of still-births, was 515,329. In Bengal, with 65,000,000 (almost treble the number), only 260,331 deaths (excluding still-births) were registered.

The following table compares the death-rates and duration of life-rates of both countries, as deducible from their mortuary statistical returns:—

#### *Death-rate.*

	Greatest.	Lowest.	Average.
England ... ..	40	17	22·4
Bengal ... ..	14·3	1	4

#### *Duration of Life-rate.*

	50	25	41
England ... ..	50	25	41
Bengal ... ..	1,000	70	250



It is quite clear from these figures that the mortality of Bengal is, as a whole, very imperfectly reported, and (considering that England is the healthiest country of which we have carefully compiled returns) that on the most favorable estimate not more than a sixth of the deaths are registered.

But this deficiency of registration is far from uniform in degree: in some districts (notably in the Sub-division Serampur), the recorded mortality *does* approach the possible, while in many others there is practically *no* registration worth the name. The worst district of all is Mymensing, with a death-rate of 1 per 1,000, and a life-duration-rate of more than 1,000 years.

I have arranged the districts of Bengal in four columns in order as to efficiency in mortuary registration.

Over 10 per 1,000.			5 to 10.			3 to 5.			Under 3.		
1	Serampur	14.3	5	Kamrup	9.8	21	Blagatpur	4.9	32	Faridpur	2.8
2	Nowgong	11.8	6	Singbhum	8.6	22	Howrah	4.6	33	Patna	2.6
3	Gowalpara	10.6	7	Sibsagar	8.2	23	Moorshidabad	4.3	34	Jalpigoree	2.5
4	Birbhum	10.1	8	Jessore	7.9	24	Malda	4.2	35	Pubna	2.7
			9	Burdwan	7.8	25	Manbhum	3.9	36	Shahabad	2.4
			10	Chittagong	7.5	26	Puri	3.6	37	Meknagar	2.4
			11	Hughli	7.4	27	Nuddea	3.6	38	Bakergung	2.2
			12	Katak	7.3	28	Saran	3.6	39	Tippurah	2.1
			13	Bancoorah	7.	29	Chunparun	3.1	40	Dacca	2.1
			14	Rajshahye	6.9	30	Dinajpur	3.1	41	Monghyr	1.9
			15	Rogra	6.9	31	Balasore	3.1	42	Sylhet	1.8
			16	Hazariabagh	6.4				43	Rungpur	1.7
			17	Lohardugga	6.1				44	Cachar	1.6
			18	Darjeeling	5.7				45	Purneah	1.5
			19	Noakhali	5.7				46	Mymensing	1.
			20	Pergunnahs	5.3						

There has been exceptional sickness and mortality in many of these districts; the only one of these needing special notice is Burdwan, where, probably, not one death in fourteen has been recorded: this is no doubt due in a great measure to the utter prostration and helplessness of both the people and the registration agency: with so severe and widespread an epidemic prevalent, it was impossible that registration on a purely voluntary system should go on.

But besides this general deficiency in mortuary registration in Bengal, there is a special defect in the matter of female mortality.

In England, the female deaths are fewer than the male, and the disproportion is due to the existence there of a number of conditions affecting women which scarcely, if at all, obtain here. Thus, women there, as a rule, escape the harder kinds of toil, enjoy comparative immunity from accidents incident to employment in mines, quarries, railways, &c., and, save in certain manufacturing centres, run little risk from machinery. Travelling less too, they are less exposed to railway accidents and to danger from wreck at sea.

Hence, during the earlier and later years of life, the death-rate among them is much lower than among men.

There is a middle period of life, however, lying between the ages of 15 and 35, and corresponding to the period of child-bearing, during which their rate of mortality is actually higher than that among men of the same age.

Now, in India, females neither escape to the same extent the harder toil and exposure on the one hand, nor are favourably circumstanced as regards the child-bearing period on the other: the very early accession of puberty, the system of compulsory early marriage, and premature introduction to the cares and dangers attending maternity, have an undoubtedly prejudicial effect on them; they age earlier, deteriorate more rapidly, and probably die sooner than women in England.

In England there were, in 1870, 631,184 females in excess of the males.

In Bengal it may be reasonably assumed that there are 1,000,000 females in excess. The following table will give an idea of the incorrectness of the mortuary returns of female mortality in Bengal:—

	Male population.	Female population.	Male deaths, excluding still-births.	Female deaths.	Ratio per 1,000 Males.	Ratio per 1,000 Females.
England ... ..	10,913,001	11,511,275	265,586	249,713	24.3	21.6
Bengal ... ..	32,000,000	33,000,000	155,122	105,171	4.8	3.1

Hence, in England, supposing the sexes to be equal in number, the deaths among males as compared with those among females, would be in the ratio of 109 to 100. Here, in Bengal, according to present returns, the proportion is 151 male deaths to 100 female deaths, the average duration of life being therefore 210 years among males, and 322 years among women—a result which is quite conclusive as to the extreme inefficiency of mortuary registration with reference to sex.

In Bengal, where there is no registration of births and deaths, and the mass of the people is still so ignorant, it can hardly be expected that the mortuary returns should attain to accuracy in the matter of age. The people do not know, have no occasion to know, and have no ready means of ascertaining or calculating their age, so that after 20 or 25 they answer very much at random: “bis—chalis” I have found to be a very common reply when interrogating jail prisoners on this head.

Still, notwithstanding all this, one is scarcely prepared for the utter absurdity of some of the returns: *e.g.*, those from Mymensing, where, while the general mortality records indicate an average life-rate of 1,000 years, there were no deaths registered in 1871 at a greater age than 30.

But it is in the registration of infant mortality that the greatest deficiency appears. An exact comparison of the Bengal and English tables is impossible, because the ages selected in the two countries do not tally: in England the terms are:—“Under one year and under five years;” in Bengal, under one and under six.

In England the deaths under one year and under five years amount respectively to 24.5 and 41.1 per cent. of the total mortality, but for this enormous proportion, the large manufacturing towns, with their narrow courts and alleys, foul atmosphere, and over-crowded population are mainly accountable: the ratio is much less in purely agricultural districts; thus, while in “Liverpool one child out of every four dies before it is a year old, in the manufacturing towns one in five, and in all England one in six, the rate in the south-western counties is but one in seven, and in the very healthiest localities one in ten.”

Under the conditions which surround infant existence in Bengal, the mortality is probably little, if at all, less than that which obtains in England. The following table will convey some notion of the extent to which its registration is neglected:—

	Total Mortality at			Rate per cent. of total Mortality	
	all Ages.	Under 1.	Under 5.	Under 1.	Under 5.
England ...	515.329	126.638	211.694	24.5	41.1
Bengal ...	260.331	14.371	41.344	5.5	15.8

So that of children under one year old, either five times as many die in England as compared with Bengal (a very unlikely conclusion), or, which is more probable, only a fifth of those who die in Bengal at that age are registered.

The divisions of the province are arranged below, in the order of least neglect of infant mortality record:—

DIVISIONS.			Ratio per cent. of Total Mortality	
			under 1 year.	under 6 years.
Orissa ... ..	...	...	16.11	25.43
Chota Nagpore ... ..	...	...	10.33	23.59
Assam ... ..	...	...	7.	20.37
Bhagalpur ... ..	...	...	5.40	17.82
Patna ... ..	...	...	6.71	16.79
Presidency ... ..	...	...	4.74	16.11
Cooch Behar ... ..	...	...	5.90	13.71
Chittagong ... ..	...	...	4.15	13.50
Dacca ... ..	...	...	3.05	13.30
Rajshahye ... ..	...	...	2.87	12.56
Bardwan ... ..	...	...	2.18	9.85

In Orissa, Chota Nagpore, and Assam, the deficiency is far less than elsewhere. In Bardwan, where an exceptionally large number of children were carried off in 1871, by malarious fever and its sequelæ, the record is most incomplete of all.

The following table exhibits the rates per cent. of infantile, as compared with the gross mortality of each district in Bengal :—

DISTRICTS.	Rate per cent. of total Mortality.		REMARKS.
	Under 1.	Under 5.	
Cuttack ... ..	19.53	29.63	Returns incomplete.
Hazareebagh ... ..	11.75	25.78	
Singbhoom ... ..	11.55	25.48	
Nowgong ... ..	5.53	23.26	
Lohardugga ... ..	8.99	23.25	
Patna ... ..	9.56	22.51	
Kamroop ... ..	7.11	22.24	
Sibsagar ... ..	7.93	21.60	
Rajmehal ... ..	4.33	21.20	
Deogurh, S. P. ... ..	5.98	20.41	
Chumpanun ... ..	9.56	20.1	
Maunbhoom ... ..	10.03	19.78	
Bhaugulpore ... ..	5.85	19.32	
Gya ... ..	7.68	19.28	
Darjeeling ... ..	9.23	18.28	
Luckimpore ... ..	6.86	19.09	
Pooree ... ..	11.21	18.66	
Gowalpara ... ..	7.13	18.15	
Jessore ... ..	5.59	17.84	
Tipperah ... ..	8.74	17.51	
Cachar ... ..	4.26	17.34	
Monghyr ... ..	5.23	16.67	
Pubna ... ..	4.79	16.47	
Rajshahye ... ..	3.54	16.08	
Shahabad ... ..	3.85	15.11	
24-Pergunnahs ... ..	4.0	14.91	
Noakhali ... ..	2.68	14.69	Returns incomplete.
Dacca ... ..	3.57	14.66	
Maldah ... ..	2.73	14.58	
Balasore ... ..	6.17	14.49	
Mymensing ... ..	1.52	14.15	
Moorsheadabad ... ..	2.50	13.85	
Nuddlea ... ..	3.82	13.59	
Sarun ... ..	5.62	13.58	
Backergunge ... ..	3.11	13.09	
Durrung ... ..	5.96	12.90	
Midnapore ... ..	3.23	12.19	
Serampore ... ..	1.58	12.05	
Sylhet ... ..	3.08	11.87	
Julpigoree ... ..	4.33	11.55	
Faridpore ... ..	3.32	11.42	
Chittagong ... ..	3.05	11.33	
Tirhoot ... ..	3.66	11.07	
Howrah ... ..	1.58	10.76	
Purneah ... ..	3.61	10.1	
Bograh ... ..	3.08	9.74	
Hughli ... ..	1.77	9.65	
Burdwan ... ..	2.43	9.41	
Rungpore ... ..	1.32	8.99	
Birbhum ... ..	1.60	8.03	
Bancoorah ... ..	2.79	7.59	
Dinagepore ... ..	1.88	6.11	

Cuttack stands at the head in this respect; the worst in the matter of 1 year registration being Rungpore, Mymensing, Howrah, Midnapore, Hughli, Birbhum, and Dinagepore, which only record about one death in twenty; while of those dying under five, Dinagepore, Bancoorah, Birbhum, Rungpore, Burdwan, Hughli, and Bogra register probably but one death out of six.

The table indicates also the existence of great carelessness in ascertaining the age at which children die, which is not a matter of difficulty. Mymensing and Serampore are glaring instances of this.

It would be both interesting and important to ascertain, from a comparison of the rate of mortality among the different sects of people in the province, the influence on health exercised by their varying conditions as regards food, clothing, occupation, and customs, as well as to discover any differences among them with reference to registration: at present it appears to be a *very little* more efficient among Hindoos as compared with Mahomedans. The attempt has been made, but has failed on account of the unreliability of the only available population estimate, the new census figures being as yet unpublished.

It appeared also, as the result of a trial to obtain approximately correct results with such census figures as had been received, that there was a want of correspondence between the mortuary and census papers, as regards the people included in both under the same heading, which entirely precluded success. Thus, the column "Other Classes" in the census papers excluded Christians, Hindoos, Mahomedans, and Buddhists, while the same column of some of the mortuary forms included not only Buddhists but also low caste Hindoos, as Mehtars, Chamars, &c., so that the number of deaths recorded in the mortuary returns of some districts actually exceeded the whole population entered under the same heading of the census papers of the same districts, and an apparent death-rate of 1,260 *per* 1,000 among "Other Classes" not unfrequently resulted.

The following table exhibits at a glance the chief errors and deficiencies of the present mortuary returns: it assumes that the population of the Bengal province is at least 65,000,000; that there are not less than 1,000,000 females in excess of males; and that the death-rate, which is far too favourable, is only 25 *per* 1,000 for men, and 23 *per* 1,000 for women:—

	Male Population.	Female Population.	RATE.		Male deaths.	Female deaths.	Total deaths.	Deaths under 1 year	Deaths under 5.
			M.	F.					
E.	10,913,001	11,514,275	21.3	21.5	205,586	249,743	515,329	126,638	211,604
B.	<i>Probable.</i> 32,000,000	33,000,000	25	23	801,000	759,000	1,560	374,100	624,000
	As returned	.							
B.			4.8	3.1	155,122	105,174	260,296	14,371	41,344

Hence it would appear that—

Of mortality at all ages, only one death out of 6 is registered.

Males	do.	do.	one	"	"	5	"
Females	do.	do.	"	"	"	7	"
Infants under one year			"	"	"	26	"
"	six years		"	"	"	7	"

The causes of this utter failure of mortuary registration in Bengal are, I think, plain enough.

1. An illiterate, not very intelligent, irregularly paid chowkeedar is expected to bear in mind and report on his weekly or fortnightly visit to the

The agency is bad.

Thana, the names, age, sex, caste, disease, and date of death of each person who has died in his mahalla since his last report. There is no sympathy between him and the villagers, who are his unwilling and, generally, very backward paymasters: he knows that any report made to him is a purely voluntary matter; that there is no law to enforce it; that he is not paid for the work, nor in any way supervised in his execution of it; and he soon learns to consider his own share in it purely voluntary also. In villages which I have recently visited in Burdwan, I have sometimes compared the Thana mortality report with the information obtained on the spot from the chowkeedars themselves, and have found the discrepancies enormous.

In one village where they admitted that 100 people had died, only 15 deaths had been reported; they admitted it openly, and did not seem at all ashamed of it. But bad as the agency is, there is at present no other; and in the North-Western Provinces they are resorting to the chowkeedar as an improvement on the old system of registration by putwarees.

2. I have never heard of a single instance in which, during ordinary healthy times, officers have enquired into the correctness of the returns. There is

There is no supervision.

a case in point mentioned by the Civil Surgeon of Dinapore in his Sanitary Report. He was informed, on referring the matter, that there was "no check or supervision, and that it would be useless, because it could only be partial and occasional." The fact is that few officers ever see the papers: they come in from the thana in the vernacular,

and are made over, untranslated, to the Civil Surgeon, who, if he be in administrative charge of the jail, sometimes sends them to the jail office for translation and compilation; failing this, he sends them to the Magistrate's office, where a clerk is allowed him for the purpose. When compiled and abstracted, they are returned to the Civil Surgeon, who forwards them to my office. Officers do not see the village returns at all, but only the compiled abstracts of each registering area. If lists of the villages in each area were kept in the offices of the Magistrate, District Superintendent, and Civil Surgeon; if carefully prepared translations of the village returns were circulated among them for perusal, the errors would be much more apparent, and immediate enquiry might be made regarding them.

The Civil Surgeon travels but little in the interior of his district, his station duties take up all his time; but the Magistrate and District Superintendent and other Civil Officers might, during their annual tour or occasional visits, take with them copies of the thana returns, or an abstract of them, and compare them with the result of their local enquiries. The subordinate police officers, constables and chowkeedars, would see that some importance was attached by their superiors to the correctness of their returns, and would be stimulated to greater activity and care in collecting and preparing them, and immediate advantage would accrue.

But these observations apply specially to villages; for towns, especially where there is a municipality, there is no excuse. The police force is ample, and there are many ways of checking the truth of the returns. If appropriate burning and burial-grounds were assigned, cremation or interment prevented in any but authorized localities, and a constable kept constantly present to record the number of corpses so disposed of, a very perfect check on the local mortality register would be provided.

3. The people are as yet too uneducated to voluntarily accept duties which cause them trouble, and of which they cannot conceive the utility; and when, as is the case with female registration among Mahomedans, the duty is positively unpalatable, cordial co-operation can hardly be expected. I am of opinion that for a time at least, registration should be made compulsory.

4. As regards the deficient record of infant mortality, it can only be remedied by persistent and active enquiry; the death of a young child is generally regarded as a comparatively trivial matter, not worth recording, and that this is the case, is attested by the fact that the bodies of children are often simply thrown away out of sight, and are neither burnt nor buried.

Now that it is no longer necessary to register the names of females who have died the returns will doubtless, if notice of the alteration be thoroughly promulgated in towns and villages, greatly improve in this respect.

In August, 1871, in consequence of the unreliability of the present returns, it was ordered that in every district of the province, an urban and rural area should be selected, their census taken with especial care, and every endeavour made with the present agency, or any supplementary help that might be necessary, to secure thoroughly accurate statistics of the births and deaths within those areas.

If this be carefully done, much valuable information will be elicited, with reference not only to the approximate mortality of the province, as regards sex, age, and religion, but as to the nature and extent of change that it may be necessary to make in the general registration agency, and its probable cost.

Until reasonably accurate mortuary statistics are available, sanitation can make little progress; the present returns are utterly valueless for any scientific purpose.

I have said nothing as to the errors in the returns regarding disease: the village chowkeedar cannot be expected to diagnose the ailments from which death occurs. No doubt there are many errors in this particular, and it will be many years before improvement can be looked for.

The following remarks on the mortuary statistics of 1871 are extracted from the District Sanitary Report:—

**MONGHYR.**—The mortality is much under-rated; there is no check whatever, and in illustration of the carelessness of the present agency, the case of a village (Etaree) is cited, where, in August, the Joint-Magistrate discovered *by chance* that a severe epidemic of cholera prevailed, and several deaths occurred, entirely disregarded by the police.

**PURNEAH.**—Incorrect; do not record the actual number of deaths.

**RAJMEHAL.**—Incorrect as to the causes of mortality.

**DEOGHUR.**—Valueless for scientific purposes, being both incorrect and incomplete. During a period when villagers close to the Sudder Station were known to the Civil Surgeon to have died from cholera, no deaths from this cause were reported.

The substitution of more intelligent machinery than that now employed appears to be necessary.

**PATNA.**—The statistics are considered to be utterly untrustworthy, not only as to the extent but still more as to the causes of mortality. The Civil Surgeon, after consulting the District Officers, recommends that the headman of the village be held responsible for the regular report to the police of every death that occurs, and be liable to punishment for failure to do so.

**GYA.**—The returns generally, but specially those relating to cholera, are unreliable; many cases of death from bowel complaint having been known to be entered under the head of Cholera. They may give an approximate estimate as to the number, but not as to the cause of deaths.

**CHUMPARUN.**—The untrustworthiness in the matter of “age” is noticed.

**SARUN.**—The mortality is much under-estimated.

**SUAHABAD.**—Unreliable; only a tenth part perhaps of the actual mortality is given. Cases of bowel complaint are commonly entered as Cholera.

**TIRHOOT.**—The statistics are not at all reliable.

**RAJSHAHYE.**—Considered more reliable than those of last year: they are still far from accurate, and the statements regarding age, altogether incredible.

**BONGAL.**—Untrustworthy; the population is guessed, mortality under-stated, and no attempt made by the police to improve them.

**DINAGPORE.**—The Civil Surgeon forwards copy of a letter from the District Superintendent of Police, notifying in reply to an enquiry that no check whatever is exercised by the police, and that any check would be useless because partial and occasional.

**MALDAH.**—Incorrect: all the deaths are not reported.

**RUNGPORE.**—Untrustworthy: chowkeedars inaccurate and careless. The Civil Surgeon has seen cases of varicella reported as small-pox, and dysentery as cholera.

The mortality in the jail being 65·69 per thousand, that of the civil population is returned at 3·60!

**BANCOORAH.**—In order to check the registration, the Civil Surgeon recommends the keeping of strict supervision over places of cremation and interment, for which special localities should be assigned.

**BEERBHOOM.**—Believed to be trustworthy by Dr. Barker.

**HOOGHLY.**—The Civil Surgeon considers them very meagre, and urges the necessity for the allotment of special sites for cremation and burial, in order to secure a salutary check over the returns.

**SKRAMPORE.**—Useless for statistical purposes, but give a fair general idea of the mortality of the district.

**HOWRAH.**—Believed to be utterly useless. Dr. Smith thinks it impossible to believe that the rate of mortality in this district is only ·005 per annum.

**MIDNAPORE.**—Considered worthless. The chowkeedar may report such casualties as he may hear of, but probably guesses at the age and cause of death.

**JESSORE.**—Reported mortality absurdly small: returns quite valueless.

**24-PERGUNNAHS.**—No report.

**DACCA.**—Incorrect, and far from being of any scientific value or importance, are calculated to mislead.

**BACKERGUNGE.**—Unreliable and incapable of improvement under the present agency.

**MYMENSING.**—The registration only commenced on 1st January, 1871. The returns are unreliable; the organization of a set of registrars from among the headmen of towns and villages, moonsiffs, schoolmasters, and postmasters.

**CHITTAGONG.**—Unsatisfactory: far from the truth both as to number and cause of death.

**TIPPERAH.**—Not even approximately correct: the medical officer recommends that registration be rendered compulsory by legislation.

**CUTTACK.**—The returns are considered to be mere waste paper. The Civil Surgeon complains of want of clerical assistance in the translation and preparation of these returns.

**BALASORE.**—Unreliable. The Civil Surgeon recommends the insertion in the forms of special columns for travellers and pilgrims: the census excludes these classes, while the mortuary returns do not, and thus error is admitted in the preparation of ratios.

**POORIE.**—Believed to be inaccurate; it is recommended that the sudder police station be made a school for training the chowkeedars.

**LOHARDUGGA.**—More regularly submitted by the police, but the Civil Surgeon can say nothing as to their reliability.

**MAUNBHOOM.**—Improving, but have no pretension to accuracy.

**DURRUNG.**—Incorrect, and the alleged causes of death open to serious doubts.

**NOWGONG.**—Approximately correct as to number, but not as to the cause of deaths, nor as to age.

**SEEBSAUGOR.**—Improving, but very far from accurate.

**LUKHIMPORE.**—Most untrustworthy, incomplete, and, as submitted by the police, full of blunders.

**KHASI AND JYNTEEAH HILLS.**—The registered mortality must be considerably under the mark: incorrect as regards the cause of death.

**JULPIGOREE.**—Unreliable as to both number and cause of deaths.

**GOWALPARA.**—Neither in the station nor district are all the deaths reported.

**DARJEELING.**—Very little reliance can be placed in the mortuary returns, especially as regards the "causes of death" and "age."

## SECTION II.

The gross registered mortality of the Bengal Province in 1871, exclusive of 2,276 still-births, was 280,331.

Its assigned causes were as follows:—

Cholera	...	...	...	...	20,278
Small-pox	...	...	...	...	3,836
Fevers	...	...	...	...	179,810
Bowel complaints	...	...	...	...	17,838
Suicide	...	...	...	...	1,392
Wounds	...	...	...	...	718
Accident	...	...	...	...	4,914
Snake-bite	...	...	...	...	6,425
Other causes	...	...	...	...	25,090

The mortuary returns for 1870 date from July only, so that any close comparison between the causes of mortality in the two years is impossible. Thus much however can be made out, viz., that in 1871 there has been a higher mortality from cholera in the Divisions of Rajshahye, Assam, Burdwan, and Cooch Behar; and from fevers, in Burdwan, Rajshahye, Nuddea, and Bhagulpore.

The season of greatest mortality was the last quarter of the year, during which 37 per cent. of the total number of deaths were registered. The months are arranged below in the order and ratio of greatest mortality:—

	Per cent.		Per cent.		Per cent.
December	... 15·0	August	... 7·7	May	... 6·6
November	... 12·2	January	... 7·4	June	... 6·6
October	... 10·	July	... 7·2	February	... 6·3
September	... 8·	April	... 6·9	March	... 4·9

## (a) CHOLERA.

20,278 deaths from this cause were registered in 1871, of which 11,704 were among males and 8,574 were among females.

The seasons of greatest prevalence were, the cold weather and close of the rains.

The disease was present during the whole of the year; the months are arranged below in the order of greatest mortality:—

December	... 6,771	June	... 1,033
November	... 3,507	July	... 937
October	... 2,507	August	... 769
May	... 1,371	March	... 306
April	... 1,366	January	... 263
September	... 1,219	February	... 229

Out of 53 districts or sub-divisions which have furnished reports, two (Lukhimpore and the Khasi and Jynteah Hills) seem to have entirely escaped mortality from cholera. Singbhoom was almost equally fortunate, having but 4 deaths to report.

The number of deaths, and the ratio per 1,000 in each division and district of the province, are entered in the following table:—

Assam Division.			Burdwan Division.		
Nowgong	... 2,006	7·82	Serampore	... 303	·63
Kamroop	... 1,793	3·19	Howrah	... 328	·65
Gowalpara	... 1,231	2·70	Hughli	... 228	·27
Durrung	... 422	1·78	Midnapore	... 68	·12
Soebaugor	... 338	1·13	Birbhum	... 84	·12
Lukimpore	...	.....	Bancoorah	... 38	·07
Khasi and Jynteah Hills	...	.....	Burdwan	... 144	·07
Total	6,790	2·8	Total	1,283	·16



<b>Presidency Division.</b>			<b>Patna Division.</b>		
Jessore ...	1,908	.....	Shahabad ...	684	·86
24-Pergunnahs ...	758	.....	Gya ...	632	·32
Nuddoa ...	508	.....	Patna ...	333	·21
<b>Total</b> ...	<b>3,172</b>	<b>·52</b>	Sarun ...	222	·10
<b>Rajshahye Division.</b>			Champuram ...	30	·02
Rajshahye ...	1,516	1·17	Tirhut ...	Incom plete.	
Malda ...	603	·88	Lohardugga ...	123	·09
Bogra ...	356	·51	Hazaribagh ...	61	·08
Murshidabad ...	609	·40	Maunbhoom ...	52	·06
Pubna ...	450	·37	Singbham ...	4	·01
Rangporo ...	617	·28	<b>Total</b> ...	<b>240</b>	<b>·07</b>
Dinajporo ...	337	·22	<b>Cooh Behar.</b>		
<b>Total</b> ...	<b>4,584</b>	<b>·51</b>	Darjeeling ...	0	·09
<b>Chittagong Division.</b>			Julpigoree ...	35	·07
Noakhali ...	102	·26	<b>Total</b> ...	<b>41</b>	<b>·07</b>
Tipperah ...	359	·23	<b>Orissa.</b>		
Chittagong ...	04	·08	Cuttack ...	121	·07
<b>Total</b> ...	<b>645</b>	<b>·18</b>	Balasoro ...	27	·04
<b>Dacca Division.</b>			Puri ...	15	...
Faridpore ...	519	·51	<b>Total</b> ...	<b>163</b>	<b>·06</b>
Dacca ...	427	·23	<b>Bhagalpur Division.</b>		
Cachar ...	44	·21	Bhagalpur ...	420	·22
Backergunj ...	288	·12	Monghyr ...	177	·09
Mymensing ...	250	·10	Purneah ...	117	·06
Sylhet ...	39	·02	Sonthal Pergunnahs ...	114	.....
<b>Total</b> ...	<b>1,507</b>	<b>·16</b>	<b>Total</b> ...	<b>828</b>	<b>·04</b>

The Assam Division, including Goalpara, suffered most, the recorded deaths being 5,790 (more than a fourth of the gross cholera mortality of the province), and the death-rate 2·8 per 1,000. The order and extent of mortality in the Assam districts were as follows:—

	Deaths.	Rate per 1,000.		Deaths.	Rate per 1,000.
Nowgong ...	2,016	7·82	Durrung		1·78
Kamroop ...	1,793	3·19	Sebsaugor	338	1·13
Goalpara ...	1,231	2·76			

I am inclined to distrust these figures, especially in the case of Nowgong. It seems almost incredible that, with a death-rate from all causes of 11·82 and from bowel complaints of only ·5 per 1,000, the cholera mortality should reach 7·8 per 1,000, or 67 per cent. of the whole. It is probable that here, as elsewhere, many deaths from bowel complaint have been erroneously classed with those from cholera.

I have received no detailed account, nothing that can be called a history, of the epidemic in Assam, nor of any endeavour to trace its origin and course. The disease seems to have existed in Kamroop and Goalpara during most part of the year, to have gradually increased in intensity from May to July, and continued with slight fluctuations till the close of the year.

At Nowgong, on the other hand, the outbreak was more sudden. There had been a few cases in June and July, but none in August. In September and October, it seems to have found conditions highly favourable to its development, the deaths increasing from 220 in September to 720 in October, when it reached its maximum of severity and began very slowly to decline; the deaths in November were 622, and in December 408. At Durrung, the returns from which are incomplete, the disease was present in August, and slowly increased till December. In Silsaugor, the deaths were few till November and December, and were limited to the Cacharee coolies employed in tea plantations. In Durrung, Kamroop, and Goalpara, the deaths were very numerous in December, and the epidemic continued to prevail during the early months of the current year.

The meteorological conditions which prevailed at Goalpara during the cholera months, as compared with those of the same months in 1869 and 1870, were—

- A mean temperature between that of the two years;
- A greater mean daily range of temperature;
- More cloudy days and more rainy days;
- A higher mean temperature of solar radiation; and
- For the year an earlier and prolonged but deficient rainfall.

There are no comparable data for the other stations except as to the rain.

In Gowhatty (Kamroop) the rainfall was 14 inches, (about a fourth) below the average; and the rainy days were fewer.

In Nowgong, there was excessive rain, 47 inches (or fully one-half) more than the average. In Tezapore (Durrugg) an excess of  $7\frac{1}{2}$  inches (a tenth), and in Sibsagar 30 inches (half) above the average.

In all these stations the rains set in earlier, and lasted longer than usual, and in all, the number of cloudy and rainy days was unusually great.

The second of the divisions in which cholera most prevailed, is the Presidency Division. Jessore had 1,906 deaths; but the disease was not epidemic, and was confined to swampy and inundated parts of the district, during the period of their drying. The 24-Pergunnahs has never sent in a report.

The only other division in which there was an undue prevalence of cholera, was Rajshahye, in which the death-rate for the whole division was 52 per 1,000. The four following districts had the greatest mortality:—

	Deaths.	Per 1,000.		Deaths.	Per 1,000.
Rajshahye	1,546	1.17	Malda	603	.88
Murshidabad	669	.49	Bogra	356	.51

In all save Bogra the disease was present throughout the year; and in all, the months of greatest virulence were October, November, and December. The rains were excessive and prolonged; the number of rainy days, beyond the average.

All these districts suffered from inundation; the disease was generally limited to the submerged tracts and their neighbourhood; and privation, improper food, and exposure to wet and cold are believed to have been greatly instrumental in causing the mortality. There is also no doubt that a great many of the cases set down as cholera were simply bowel complaints.

In Malda especially, this seems to have been the case, for a Native Doctor who was sent to a locality in which it was reported that the disease was rife, could find none to treat. The fact that the reported death-rate from bowel complaint, for the Rajshahye Division (which is highly malarious) is only .09 per 1,000, is corroborative of the suspicion of error of this kind.

In Murshidabad, a *bund* on the Bhagiruttee gave way during the month of August at a place called Lall-tikree, 22 miles north of Berhampore, and a volume of water, some 13 feet in depth and 600 feet broad, but which soon increased to a mile in breadth, pouring into the interior of the district, carried away villages, roads, and bridges, and inundated a very considerable tract of country, causing great distress and much sickness. It was in these tracts that, as the water ran off and the land began to dry, cholera appeared. Berhampore itself suffered little, but there were five cases and four deaths in the cantonment under circumstances worth recording.

At the north-western corner of the cantonments is a block of buildings, consisting of three sets of quarters, parallel to the river, and each having a long slip of garden behind it. The gardens of the end houses are much built over, but not that of the centre house, which however was unoccupied and the garden uncared for. In the beginning of May, a coachman living in one of the out-houses of the most northerly house, was seized with cholera, but recovered. In June, the gentleman who occupied that house was attacked with the same disease, and died. In October, a syce living in the compound of the house at the other extremity of the block of three, took cholera and died. In November, a compounder living in a house at the bottom of the garden of house No. 1, died in three hours from the beginning of his attack. In all there were five cases in the cantonment during the year, and all occurred in the two occupied houses of this one block of three. The Sanitary Committee met, examined most carefully the condition of the compounds, drains, &c., and the state of the garden, but could find nothing to account for the disease. The garden of the centre house had been neglected, there was a good deal of jungle in it, and it was reasonably suspected that the servants of the adjoining houses had been in the habit of defæcating and of throwing refuse there; but at the time of the Committee's visit it had been thoroughly cleaned and the jungle cut, and there was nothing specially suggestive of mischief. The corner house was cleaned out, the garden cleared, and the out-houses fumigated with sulphur; subsequently, some of the buildings which crowded the ground behind it, were pulled down and freer circulation of air established. I believe there has been no more cholera since. My own belief is that the neglected state of the central garden, and its use by natives as a latrine, was the *fons et origo mali*; and the moral I would deduce is, that it behoves the Municipal Commissioners to look sharply after all unoccupied buildings, to see that they are not allowed to become a nuisance, and to compel their owners to keep them in proper condition.

There is reason to believe that in Murshidabad, as elsewhere, the reports regarding cholera were highly exaggerative.

Cholera has been reported from all the other districts of Bengal, but has generally been mild in type, amenable to treatment, and has shown little tendency to spread. Owing to the unusually heavy rainfall in Northern India, the flood-level of the Ganges and of most of its tributaries has been higher than at any time during the last ten years, and in almost every district considerable areas have been inundated either from overflow or from the bursting of local bunds. The local rainfall has also been excessive, and contributed to keep the country moist for a longer period than usual. Over these flooded tracts, where villagers have been driven from their houses and left shelterless, and their crops and property destroyed, there has been necessarily much privation and exposure, and it is among such people and in such tracts, during the period of their drying, that local outbreaks of cholera have occurred. There are a few districts, however, in which the disease was most prevalent and fatal during the hot months, such as Rungpore, which suffered most in April and May; Tipperah and Dacca in March and April; Gya in June and July; and Shahabad in May and June.

In Dacca, where cholera existed throughout March, the disease broke out among an assemblage of 400,000 pilgrims, chiefly females, who had come to bathe in the Brahmaputra at Nungulbund: fortunately it spread but little among them, and there is no record of its introduction by them into other parts of the district; but from the report of the Civil Surgeon of Noakhali it would appear that the disease was introduced there by a woman who had contracted it on her way home from this very mela at Nungulbund, and who died in Noakhali on the 5th April.

In the beginning (1st) of June, some villages to the north and north-west of the Gya district were very suddenly attacked by cholera. Dr. Russell visited them at once and made a local investigation, but was unable to discover any cause for the outbreak, or any reason for its special selection of, and limitation to, these particular villages.

In Monghyr, during the month of August, there was a similar outbreak in one small village; the disease was apparently imported, spread rapidly in the village and caused several deaths, but did not spread beyond.

In the Chittagong Sanitary Report, the Civil Surgeon, Dr. F. F. Allen, mentions an outbreak of cholera, on board a steamer, among 300 coolies destined for the Lopshai Expedition. In this case, overcrowding, filthy habits, and caste prejudice (by causing to fast for long periods rather than cook on board) seem to have been predisposing causes. Overcrowding on shipboard is under any circumstances to be avoided, but a still greater amount of attention to this matter is needed when, as in the present case, the people to provide for are exceptionally dirty in their persons and subject to special privation as regards food.

I append to this general statement regarding cholera, condensed extracts from the sanitary reports of Civil Surgeons. Many are interesting, and I think it important that they should all be on record for future reference.

It will be seen that during 1871, cholera prevailed in every district and in every registering area of Bengal. There are 728 registering areas, and the endeavour to prepare a Cholera Map, indicating by figures each area, the date of first and last cases, and the mortality, resulted in the obliteration by a confusing multitude of figures of every detail of the map. It is impossible to submit an intelligible map for 1871 on the plan laid down by the Sanitary Commissioner with the Government of India.

**BHAUGULPORE.**—With the exception of one case in February, and two in March, the district was free from cholera till the beginning of August, when it appeared among an assemblage of people who had escaped from their inundated villages and collected with their cattle at Peerpointee, 22 miles east of the sudder station. Slowly spreading to the westward, it reached Biraree, a north-eastern suburb of Bhagulpore, in the beginning of September. On the 6th of that month the Civil Surgeon visited the spot, found 27 persons ill, and learnt that 40 deaths had occurred during the preceding seven days: new cases were still reported. The suburb was isolated, communication between it and the town limited as much as possible, a native doctor and medicines despatched to the spot, and by the 22nd September the disease had disappeared at Biraree: it continued to prevail however at Peerpointee, Colgong, and in the town till the middle of October, when it ceased. The cases were few, isolated, and of very mild type. The origin of the disease could not be traced to any pilgrim or any one arriving from an infected place: the Civil Surgeon attributes it to noxious exhalations from the damp soil, bad food (especially rotten fish), exposure to wet and cold, and distress. There were no cases in the central jail, which is remarkable, considering that communication with the town was very free through the coolies employed by the Public Works Department: 420 deaths were reported altogether.

**MONGHYR.**—There were occasional cases in the town and suburbs from the end of May to the close of the year; they were never numerous, did not occur in anything like epidemic sequence, intervals of a week or ten days often elapsing without a report. The Civil Surgeon, Dr. T. Mathew, in a very interesting report, describes several unsuccessful attempts made to

trace the origin of local outbreaks. "On the 4th June," he writes, "an elderly convict was seized with cholera. Within the walls of a Jail, if anywhere, a Civil Surgeon has every facility for investigating the history of a first case; but in this instance I could not make even a satisfactory conjecture as to its source: the prisoner had not been outside the Jail for months, had no intercourse with people from outside, and was living under exactly the same conditions as to food, water, employment, &c., as the rest of the prison population. How the cholera found its way to him alone (for there was no other case in the jail) is a mystery."

Again, in two cases which occurred synchronously in August, in houses fifty yards apart and on opposite sides of the same street, no clue to the source of the disease could be obtained. There was no cholera in the neighbourhood; the sufferers had neither visited nor received visitors from other localities, had not been near any one affected with cholera, nor did the disease spread in their vicinity.

Dr. Mathew states that "in none of the outbreaks reported in the town or suburbs did the disease show any tendency to spread", and adds, "this is the history of cholera in non-epidemic seasons, in places such as Monghyr, situated within the endemic limits of the disease; cases occur every year, but if, under conditions opposed to its propagation, the seizures are few and the attack dies out; let the conditions however (and I cannot venture to guess what they are) be favourable to the spread and growth of the poison, the disease assumes an epidemic character."

On cholera in the district, Dr. Mathew writes: "Outside the town and suburbs, I am not in a position to procure accurate information as to the movements of the disease, but I had an opportunity of investigating an outbreak in one village, the history of which contrasts very strongly with that of cholera in the town. Towards the end of October the Joint-Magistrate informed me that he had discovered, *by chance*, that the disease was raging in a village named Etaree, nine miles south-east of Monghyr. On visiting the place, I learnt that out of a population of between 300 and 400 souls, 40 had died, in a fortnight, of cholera, and many were lying ill of it. The village was compact and comparatively isolated; there was no cholera in the vicinity, but the disease had clearly fallen on the place with almost epidemic force. For some reason, I am unable to say what, *no report of it had reached the police*. The inhabitants gave me a very clear account of the entry of the disease. A man had arrived there ill of cholera a fortnight before. They declared that he came from a village at some distance, in which, they said, cholera had broken out before he left; but this turned out on inquiry not to be true, and the man must have been seized *en route*. He went to the house of a relative on his arrival. Two of the residents were attacked with cholera shortly after; then the disease broke out in the next house, and so spread through the village. The outbreak was subsiding at the time of my visit to Etaree, and did not extend to the villages round. I look upon this as a typical instance of cholera brought into a place, the conditions of which were favourable to its extension, conditions—whatever they were—which were absent from the town of Monghyr itself. Etaree was certainly a very filthy village, but probably no filthier than any other village in the district in which a case or two of cholera occurred, but where it did not spread." The total reported deaths in the town and district were 177.

PURNEAH.—Cholera appeared in the south-east of this district in October in localities where the Ganges had overflowed, and was limited to the area of inundation. The last case occurred on the 22nd January of the present year. The total number of cases is unknown.

Dr. Picachy attributes the outbreak to a damp condition of the soil and air, to the destitution, insufficient clothing, and exposure to wet and cold of those affected, together with their use of bad, and especially of uncooked, vegetable food. The Jail was entirely free from cholera. The reported deaths were 117.

RAJMEHAL.—Cholera first appeared at Sahelgunge, at the end of August, among some Railway coolies who were living by the side of the line: thence it is said to have spread to Kakrotee, a thickly crowded and neighbouring bazaar on the right bank of the Ganges. Both places being on low sites, were inundated, and the inmates of the submerged huts having to take refuge in the houses of the remainder, there was much overcrowding.

There were 51 cases and 23 deaths. The last case in this locality occurred on the 15th September.

In September (no date is given) there were three cases of virulent cholera in the Rajmehal Jail, and two died: there were also "some" cases in Rajmehal. The majority of the prisoners were employed in out-door labor.

The Annual Sanitary Report mentions 53 cases and 27 deaths, irrespective of those which occurred in the town of Rajmehal itself, as occurring in August and September. The mortuary statistics submitted report but eight deaths in the entire district, and of these only two are said to have happened during those months!

**DEOGHUR.**—Occasional sporadic cases were reported in the town and neighbouring villages; there were two in the middle of February, and others in April and early part of May.

In September again there were cases in "the town and some of the villages, but the disease soon and suddenly disappeared. The annual report does not record the dates of the first and last cases, nor the names of the affected villages. The Civil Surgeon mentions 32 deaths as the total mortality of the year, but the number of deaths reported in the returns is 106."

**PATNA.**—In August three cholera cases were reported from the eastern end of the town, and a few seizures from other places in the neighbourhood: isolated cases continued to be reported for the three succeeding months.

Early in November several suspicious cases of diarrhoea, attended with vomiting, occurred in the Jail. On the 9th and three following days fifteen cholera cases were admitted, of which four died. Two hundred prisoners were at once removed to Deegah, where three hours after their arrival three of them were simultaneously attacked, and one man died.

Dr. Simpson connects this outbreak with the damp state of the Jail wards; the walls were damp to the height of four feet: "the flooring was in such a state that in walking over it an impression of the foot was left, and a walking stick could be easily pushed in up to its middle; it was just as this state of things was at its height that cholera broke out."

"Curiously enough when the floods were at their highest level, reaching in fact to the Jail walls, the wards were quite dry; this excessive damp only made its appearance after the cessation of the rains in October, and at a time when the level of the sub-soil water, as indicated by the wells, had considerably sunk. Hay provided for the prisoners to sleep on, needed drying before it could be used a second time."

There were isolated cases reported from the district throughout the year. The total reported deaths were 333.

**GYA.**—Cholera appeared in an epidemic form from early in the month of June in and about Ticcari, Urwal, Jehanabad, Makdoompoor, and Baylah, west, north-west, and north of Gya, and remained till the middle of July. The Civil Surgeon's personal investigations led him to conclude that about 250 persons were attacked, of whom 95 died: it was most virulent at a village called Mowk near Ticcari. Dr. Russell, who evidently interested himself in the matter, and personally exerted himself to ascertain the origin and extent of the outbreak, writes as follows:—"The first case of cholera made its appearance at Baroan, a village near Jehanabad, north of Gya; the next case at Puriozabad, near Urwal, north-west of Gya, and both on the same day, 1st June, 1871. The disease kept steadily about the Jehanabad, Urwal, and Ticcari neighbourhood without apparent reason. Nothing whatever could be gathered as to the cause of the outbreak, and it could not be traced to fairs, pilgrimages, or bad water. At a village, Koomany, 45 miles north-west of Gya, the disease raged for a short period, carrying off fifteen men, ten women, and five children in the space of a few days. It appeared to me to be a very singular circumstance why this village was singled out by the disease, pounced upon as it were, while all the other villages in the immediate neighbourhood remained intact. The village in question was not in any degree more crowded than the other surrounding villages, and there were no cesspools, foul drainage, or the like to account for the predilection."

The mortuary returns give 638 deaths from cholera during the year, but there is every reason to believe that in this, as in some other districts, bowel complaints have been included under the head of cholera.

**CHUMPARUN.**—There was no epidemic. Thirty cases were reported during the year, December being the only month in which no such case occurred.

**SARUN.**—Did not assume an epidemic form: there were 222 deaths from this cause during the last three months of the year; it prevailed principally in villages on the banks of the Ganges where there had been inundation.

**TIRHOOT.**—Beyond the statements that "no severe or wide-spread epidemics prevailed during the year, although cholera and small-pox occurred at different places," and that "there is no reliable account as to how they originated," the sanitary report from this district conveys no information on the subject. 85 deaths were reported in the mortuary returns.

**SHAHABAD.**—There was a slight outbreak of cholera in the sub-division of Sasseceram during May and June; the majority of the few cases reported in the town of Arrah turned out on inspection to be ordinary bowel complaints due to errors in diet. Dr. Thornton remarks that intestinal worms appeared in some instances to have been the exciting cause of attacks resembling cholera. In October and November also cholera was reported from Buxar and its neighbourhood; but both from inquiry and personal observation Dr. Thornton was induced

to believe that nearly all the cases were really due to diarrhoea, dysentery, and other bowel affections. This opinion is also shared by Dr. Wright, of Buxar. The total deaths reported are 682. March is the only month in which no cases were reported.

**RAJSHAHYE.**—Cholera existed during the entire year: it assumed an epidemic form in the northern portion of Pooteeah, spread rapidly to the north-western and west, and reached the Beaulah registration area in November. Still extending westward, it appeared in virulent form at Godagaree in the beginning of December: it progressed also to the eastward of Pooteeah, reaching Nattore in November, and invading successively Charghat, Bilmareeah, Singrah, Baragaon, Bagmarrah, and Bandaikhara. Thus the whole of the district east, north-east, partially north and west of the sudder station suffered from the epidemic; Mandah, on the extreme north alone, enjoying singular immunity. At the end of the year the disease had died out at Pooteeah, Godagaree, and Beaulah; had much abated at Nattore, Bilmareeah, and Bandaikhara, but continued to prevail at Singrah, Baragaon, and Bagmarrah. The district was extensively inundated, and Dr. Bensley considers that the privation and distress to which the villagers were thereby subjected, especially predisposed them to the disease. Medical aid and medicines were despatched to Pooteeah as soon as the outbreak became known, and Dr. Bensley supplied the Deputy Magistrates and Police Inspectors with a set of simple sanitary rules for their guidance.

Three new dispensaries were opened during the epidemic. A zemindar of Nattore, Mahomed Rassool Khan, liberally assisted the sufferers in that sub-division. 1,546 deaths were reported to 31st December.

**BOGRAH.**—Cholera prevailed during the months of April, May, and June, and from September to December, in 8 out of 9 thanas, the exception being Raigunj, south-east of the station.

It is probable that here as elsewhere the reports of cholera were greatly exaggerated; at two places, Sherpur and Dhamrah, to which in consequence of police reports that cholera was very prevalent, native doctor and medicines were despatched, no cases were found.

Two fatal cases occurred in the Jail; the civil medical officer could attribute them to no other cause than the use of water from the Karatoya "*a narrow, extremely shallow, and almost stagnant stream, fouled at every point in every conceivable way:*" on stopping the use of this water for drinking purposes, and substituting filtered well water, the disease at once disappeared. 356 fatal cases were reported.

**DINAGPORE.**—Cholera existed, but not in an epidemic form, during every month of the year; the preponderance of cases occurring in November and December. Cold, insufficient clothing, bad food, and fatigue are the causes assigned. There were no cases in the Jail. The number of deaths in the district was 327.

**MALDAH.**—Sporadic cases of cholera were reported from all parts of the district during the first six months of the year. In July it assumed an epidemic form at Monohurpore, and gradually spread to surrounding villages: by the 1st August it had travelled to the sudder thana, and thence extended north and north-west to thanas Khurbah, Gazole, and Gorgoriba. During September the disease prevailed in a mild form all over the district, but increased in virulence as the inundation subsided: it was especially severe in Gorgoriba thana in the north-west and at Kalliachuck in the south. The mortality is estimated at 603.

**RUNPORE.**—Deaths from this cause occurred during all the months in the year, save August. No history is given. The reported deaths were 617.

**BURDWAN.**—A few sporadic cases were reported throughout the year: in some villages near Culna there were a few cases in December. The deaths were 144.

**BANCOORAH.**—No epidemic: a few isolated cases only reported; the total deaths number but 38.

**BEERBHOO.**—At Ratna, in thana Molessur, 17 miles east of the station, "a few" cases occurred in June.

Later in the same month at Kulleshur, thana Burwan, 31 miles east, there were 19 cases and 12 deaths; and shortly after at Thakurta, north-west of Kulleshur, 6 cases and 3 deaths. On the 20th December the disease appeared in a virulent form at Ghoratore, sub-division Doobrajpoor, 14 miles south-east of the station, and spread to some neighbouring villages. 34 persons were attacked and 3 died.

The Civil Surgeon, Dr. Barker, visited the locality, but was unable to trace the origin of the outbreak to any special cause. There had been a fall of rain a few days before. The reported deaths were 84.

**HOOGHLY.**—Cholera prevailed in a sporadic form during the latter half of the year. At Jehanabad it appeared in March and ceased in April. At Khanacool and Ghattal it broke out in July, and at Tarakessur, Bullagurh, and other points near the sudder station, in September. In November it appeared at Pundooah, and in December at Mahamoodpoor, thana Bansberriah. Ten cases were admitted into the jail hospital, of which eight died. The district mortality was 228.

**SERAMPORE.**—Cholera prevailed, but not in an epidemic form, during every month in the year. The mortality was highest in October, November, and December; the total deaths for the year were 328.

**HOWRAH.**—Cholera existed throughout the year, but was nowhere severe. November and December were the worst months. 393 deaths were reported.

**MIDNAPORE.**—There were only a few sporadic cases here and there. 68 deaths were reported. Dr. Mathew remarks that "while pilgrims have long been considered one of the principal sources of the disease, although large numbers of them passed through the highlands of the district and the town, they failed to import the disease, and that so far as he can learn it would appear that the parts of the district through which pilgrims pass year after year have been hitherto least troubled by this scourge." He adds that "dysentery and fever—the result of bad food and water, exposure and fatigue," "and not cholera"—are the causes of the heavy mortality among pilgrims. Total deaths 68.

**NUBDA.**—No epidemic: a few cases occurred here and there at the close of the year. The total deaths were 511, of which 432 occurred in one month, December!

**JESSORE.**—Cholera existed to a very slight extent throughout the year; in November, however, during the drying up of the inundated portions of the district, the disease began to "prevail extensively in various parts." No information as to localities or dates is given in the Sanitary Report. 1,966 deaths are recorded, of which 1,268 occurred in December, and 708 in November.

**DACCA.**—Dr. Wise, who has gone into the matter with unusual care, reports as follows:—

"There was a striking freedom from cholera during the cold weather of 1870-71.

"The first case occurred in the jail on the 15th February, when the weather was unseasonably warm: on the following day a man was taken ill in a mohulla on the southern limit of the town. Both cases recovered.

"On the 11th March cholera was reported as having occurred at Torelpur, 15 miles north of Dacca: only 21 deaths were reported by the police in the whole of the zillah during March, but on my deputing a man to Torelpur, he ascertained that 18 cases had proved fatal in that village alone. On the 19th March cholera was reported to have appeared about ten miles further east. These facts and dates are important in connection with the appearance of the disease among the crowds of pilgrims who assembled at Nungulbund at the end of the month to bathe in the Brahmaputra. On the 18th March a man was admitted into the Mitford Hospital in a collapsed state, and died a few hours afterwards. I could only hear of three cases having occurred in Dacca between the 21st and 24th March, but on the 28th I saw a fourth case. Cholera, though unusually rare, was still present in Dacca. On the 29th March, the bathing day, there were assembled at Nungulbund a crowd estimated to number 400,000 persons, chiefly females. No case occurred among them up to that date, but on the 30th a man died of cholera in the hospital at the fair. On the 31st a second case was admitted, on the 1st April, a third, and on the 2nd April, two.

"The pilgrims began to stream into Dacca on the 30th March, and between that date and the 4th April, 11 cases were treated among them: not a single seizure was heard of among persons who had not quitted Dacca.

"The disease clung to the pilgrims while they traversed the district; but I am glad to say in very few instances did it spread to the people at large."

"From this date till November scarcely a single case of cholera was reported. On the 7th I believe the first case of the cold weather occurred in a man who had arrived from Assam with diarrhoea, and the second day afterwards was taken ill with cholera: on the 18th a sepoy of the 22nd Native Infantry was attacked; on the 22nd four cases were announced, and from this date till the middle of December, the police continued to report the presence of the disease. I have been particular in drawing attention to these cases, as it is an universal belief among natives that the cholera of the cold season is introduced into the city from the great *méla* at Moonsheegunge, about 14 miles from Dacca. This *méla* did not begin till the 26th November, and the crowds did not disperse till the 12th January. Although cholera was present in many parts of the district before, during, and after the fair, yet only one case was

admitted into the hospitals at Moonsheegunge. In Dacca I heard of no cases during December." Total number of deaths reported 427.

**BACKERGUNGE.**—A few isolated cases occurred in the north and south of the district, but the disease was not epidemic. There were two cases in the Jail in April and May, and a few in the town, but they were of mild character. The disease did not spread. Of the cases reported from the district, the Civil Surgeon remarks that he believes that all cases of severe diarrhoea, and probably those of fever terminating in colliquative diarrhoea, are returned as cholera. 288 fatal cases were reported altogether.

**FURREEDPORE.**—There were two cases in February, six in March, and a considerable number of sporadic cases in April, in which month there were 99 deaths; it declined and died out in June. In November it re-appeared in the south, bordering on Jessore, and two neighbouring thanas were visited in December. This part of the district is low and swampy, and during the rains is one of the drainage channels of the district. The total deaths in the district were 519.

**MYMENSINGH.**—Cholera prevailed throughout the year, but not in an epidemic form: the worst months were November and December. 323 deaths were registered.

**SYLHET.**—No report received.

**CACHAR.**—Cholera appeared at Silchar on 26th May, and ceased on the 10th July. There were 57 cases and 25 deaths in the town. The disease was of a mild character, and showed no disposition to spread: it could not be traced to importation, and was due to "endemic local causes." The first case, fatal the fourth day, came from near the distillery; and twelve days after the death, four other cases were brought to hospital from the same locality. The Civil Surgeon examined the neighbourhood and found it in a highly unsatisfactory state: on its being cleansed, its jungle cleared, and stagnant pools filled up, the disease subsided. Total mortality 44.

**CHITTAGONG.**—In thana Putteeah there was a slight outbreak in April and May; on the 2nd of the latter month, when the last report was received, there had been eight fatal cases: "the disease seemed to be checked by the river, as no cases occurred on the opposite bank."

In December cholera again appeared in the Putteeah and Hathazaree thanas, where 23 deaths occurred, and in the town of Chittagong, where there were 28 deaths.

On the 7th December a steamer arrived laden with Nepaulese coolies for the Looshai expedition among whom cholera had broken out. Out of 300 coolies, who are described as "most filthy in their habits and persons, and somewhat overcrowded," fifteen had died before and nineteen after they reached Chittagong. Fasting on board the steamer for long periods owing to caste prejudices and the use of raw fish contributed it is supposed to cause the outbreak. The mortality of the year was 94.

**NOAKHALLY.**—The first death from cholera occurred on the 5th April; it was in the case of a female who had been taken ill on the 3rd on her way from the Nungulbuud fair. There were no more cases in Noakhally till the 18th, when a boy in the adjoining house was attacked: he recovered; but on 20th his mother was seized, and died on the 21st. At the end of the year cholera was reported to prevail at the Island of Sundcep, and to a limited extent in Ameergong and Lukeepore.

**TIPPERAH.**—There were a few cases in March occurring synchronously with the arrival of the pilgrims, and disappearing as suddenly with the setting in of the rains: the total deaths in the district were reported to be 359, but the Civil Surgeon has reason to believe that this number is an exaggeration.

**CUTTACK.**—There were but few cases reported from the district, very few in the town, and none in the Jail which suffered severely in 1870. Total deaths 124.

**BALASORE.**—Balasore has been comparatively free from cholera, notwithstanding that a very large number of pilgrims passed through the district.

**POOREE.**—There was no epidemic this year—a most unusual circumstance, as the disease breaks out annually in June or July, when the pilgrims arrive: not a single case came under the Civil Surgeon's observation.

Reports of suspected cases were received, but on enquiry they turned out to be cases of diarrhoea and dysentery. The Civil Surgeon believes the mortuary returns of cholera to be incorrect. Dr. Stewart attributes this immunity rather to the steady and free rainfall from February to October than to any of the sanitary arrangements made at the last Ruth Jattrā.



**HAZAREEBAUGH.**—There were a few cases in April at Cullah and Bagodhar, (the latter on the Grand Trunk Road,) and in May at villages Mounghce and Gedharie: in July, during 15 days, there were also some cases at Chuttra, to the west of Hazareebaugh. The reported deaths for the year were 61.

**LOHARDUGGA.**—No epidemic. A few cases occurred in each month of the year; the highest mortality occurred in July and August, when 43 and 33 deaths were reported. The total mortality was 129.

**MAUNBHOOM.**—Cases here and there occurred in various parts of the district. There were 51 deaths, of which 19 occurred in April, the month of greatest, and only 1 in August, the month of least, mortality.

**SINGBHOOM.**—Limited to a few sporadic cases in the district; none in the station. Deaths reported 4.

**DURRUNG.**—Cases occurred all through the year, and were most frequent and virulent in July and December. In July the cantonments especially suffered, while the civil station was comparatively unaffected. In November and December there was a severe outbreak in the extreme western and extreme eastern parts of the district.

Some of the villages were reported deserted. The domes and fishermen are believed to have suffered much less than other classes, and themselves ascribe their immunity to the use of river water. Mortality is increased by the practice which obtains among villagers of deserting cholera patients in the belief that the disease is contagious. Total deaths 422.

**NOWGONGA.**—Cases were reported in June, increasing monthly in number and fatality till October, and continuing with more or less severity to the end of the year. The Civil Surgeon attributes the disease to impure water. There were 6 cases and 3 deaths in the jail in October. Total number of deaths 2,016.

**SEESAGUR.**—Cholera prevailed in a sporadic form during the greater part of the year, and appeared as an epidemic at some outlying tea gardens, Oating Factory, in the interior of the Golaghat sub-division, during August, November, and December. Its appearance was sudden, and the seizures were limited to the Cacharee coolies, of whom 16 died in a fortnight, while other classes of laborers were unaffected.

There was another outbreak in the Golaghat sub-division in November and December, but the sub-divisional town escaped, notwithstanding free communication with the infected localities. The mortality was 314.

**KAMROOP.**—Cholera appeared in Gowhatty on the 23rd May and lasted till August 14th, and again from 14th to the end of October. In the district it lasted till November. In Than-nah Komulpore, May was the only month in which there were no cases. Thannahs Gowhatty and Nulbaree suffered most, their mortality being respectively 216 and 328. There is no satisfactory history of the disease given in the Sanitary Report. 1,096 fatal cases were reported.

**KHASI AND JYNTEAH HILLS (Shillong).**—None.

**JULPIGOREE.**—A few isolated cases from time to time during the year. Altogether 41 deaths are reported.

**GOWALPARRAH.**—Cholera was present throughout the year; at its worst during the last half year. No dates are given, nor the names of the villages in which it prevailed; in fact, no history whatever, though it is stated to have been in "some parts epidemic." 1,231 deaths are recorded, the greatest mortality being in registering area Salmarah, where 382 died, and in Lukhipore, where 184 deaths occurred. July, October, November, and December were the months of greatest prevalence.

**DARJEELING.**—Almost none: a few cases (9) were reported; but Dr. Duka doubts the correctness of the report.

## SECTION II.

## (b) SMALL-POX.

There were registered in 1871 3,836 deaths from small-pox, the proportion to the total mortality from all causes, being 1·4 per cent., and to population about, 6 per 100,000.

The order of monthly mortality from highest to lowest was as follows :—

April	...	...	July	...	...
May	...	...	August	...	...
March	...	...	December	...	...
June	...	...	November	...	...
February	...	...	October	...	...
January	...	...	September	...	...

None of the districts recorded a high mortality. The six highest were—

	Deaths.		Deaths.
Maunbloom	... 272	Patna	... 185
Cuttack	... 212	Champarun	... 154
Kamroop	... 194	Goalpara	... 152

The six lowest were—

Faridpore	... 2	Darjeling	... 7
Bancoorah	... 2	Noakhali	... 7
Cachar	... 5	Luckimpore	... 8

It would be very satisfactory if one could believe these figures, but they are clearly untrustworthy, and the mortuary statistics regarding small-pox conflict dreadfully with the district reports.

If mortuary registration were tolerably complete, the tendency no doubt, would be to over-state the deaths from small-pox, by including under that head deaths from measles and other eruptive fevers : at present, while doubtless many of the registered deaths from small-pox were really due to other diseases, there is no doubt that the actual mortality from small-pox is greatly under-stated.

In Maldah, for instance, small-pox is said to have prevailed in every thana during the *first six months* of the year; to have been *very severe* in March in a number of villages; to have *raged virulently* on the northern thanas in May, &c., yet the recorded deaths for the whole district were only 77 during the year.

In Burdwan again the Civil Surgeon in his annual report mentions 403 deaths: the mortuary statistics give 92.

In Dacca the report mentions 184 deaths; the returns 114.

On the whole it may be concluded that in 1871 there was a less amount of small-pox than usual, and that the early and excessive rainfall, which aggravated the fever mortality, had the usual effect of diminishing the prevalence of small-pox.

There is also every reason to believe that vaccination is much more efficiently and uniformly carried out of late years; it was a matter of great surprise and pleasure to me, while visiting villages in Burdwan this year, to notice the great proportion of children who had been vaccinated.

**BHAGULPORE.**—Twenty-two deaths.

**MONGHYR.**—Small-pox appeared in the town early in the hot season: the disease was of mild type, did not spread, and the mortality was very trifling. Total deaths in district 43.

**PURNEAH.**—Small-pox was reported on the 12th April as prevalent at Hufagunj, where 29 deaths had occurred. On the 20th it was reported that the disease was declining. A vaccinator, who had been despatched to the locality, was not allowed to vaccinate any children, the excuse being that they were all inoculated.

Dr. Picachy remarks that in Purneah the disease is “less widely spread and less dreaded” than in other places. Deaths 75.

**RAJMEHAL.**—Returns incomplete. 7 deaths reported.

**DEOGURH.**—No epidemic. 92 deaths.

**PATNA.**—At the beginning of the hot season there was a slight outbreak of small-pox chiefly confined to the east of the district. Vaccinators were sent out to the affected localities, and apparently with good results, for the disease soon subsided. Deaths 185.

**GYA.**—There was no epidemic of small-pox in any part of the district. Deaths 147.

**CHUMPARUN.**—No information. Deaths 154.

**SARUN.**—There were 147 deaths from small-pox.

**SHAHABAD.**—There was no epidemic during the year. Deaths 66.

**TIRHOOT.**—“Small-pox occurred at different places in the district: as inoculation still prevails, I strongly suspect that small-pox was introduced to some places by this means.” This is the only information on the subject that I can find in the very meagre report from this district. Deaths 138.

**RAJSHAHYE.**—In February small-pox was reported at Bagmarrah, north-east of the station, where it continued to prevail for nine months, and was more severe than in any other part of the district.

It spread thence to villages in the neighbouring thanas Bandaikhara and Baragaon, then to Nattore, and lastly eastward to Pooteeah, where there were 54 cases. It is in these north-eastern and eastern tracts that all epidemic visitations are most severely felt. The worst months were April and May; August, September, and October were nearly free from it. 359 cases were reported, but this number probably falls far short of the truth. The recorded deaths were 59 or 17·1 per cent. of those attacked.

**BOGRAH.**—Only 25 deaths are recorded.

**DINAGEPORE.**—No information. Deaths 38.

**MALDAH.**—Small-pox has been more or less prevalent for three years. During the first six months it existed in all the thanas, and in March was very severe in villages Saukmoani, Tarapur, Surburi, Soonripara, Toothbati, Casidgurih, Chamlapara, and others on the outskirts of the old town, six miles from the station. A village in the north called Ashinapore also suffered at this time. In April it had spread among the distant villages of thana Maldah, and by May was raging virulently in the northern thanas Khusba and Gazole.

From July to November it seemed to have disappeared, but in December increased again. Vaccinators and a native medical pupil were despatched to vaccinate the unprotected.

It is remarkable that while the above description of the Civil Surgeon's indicates a considerable outbreak of this very fatal disease, only 77 deaths were registered for the whole year in the entire district.

**MURSHIDABAD.**—No information. Deaths 46.

**PURNA.**—There were a few isolated cases only. Deaths 66.

**RUNGPORE.**—There were deaths from small-pox in every month, except November. Deaths 147.

**BURDWAN.**—“Occasional outbreaks in Bood-bood, Munglecote, Gangooreea, and Aoo-gram thanas were reported from March to August. In one large village, Kobsanaree, it was ascertained by the Government vaccinator, deputed to the spot, that the disease had been propagated by professional inoculators who had been practising there for months.” There were 2,056 cases and 403 deaths.

**BANCOORAH.**—Two deaths.

**BEERBHOOM.**—On 8th May there was a slight outbreak at Sagnore, a village in thana Shakulipor, and on 14th June at Shaha village: the disease did not spread and declined rapidly. 19 deaths recorded.

**HOOGHLY.**—No small-pox worth mentioning. 34 deaths only.

Serampore	...	...	...	...	...	31 deaths.
Howrah	...	...	...	...	...	15 „
Midnapore	...	...	...	...	...	31 „
Nuddea	...	...	...	...	...	47 „
Kooshtea	...	...	...	...	...	13 „
Jessore	...	...	...	...	...	65 „
24-Pergunnahs	...	...	...	...	...	No report.

**DACCA.**—In the town itself, one case in April was the only instance brought to the Civil Surgeon's notice during the year. In Dhamree and Bhugoola villages, north of Dacca, there was a mild outbreak accompanied with trifling mortality in April. Deaths 11.

**BACKERGUNJ.**—Eighty-nine deaths.

**FARIDPORE.**—Two deaths.

**MUMENSINGH.**—Little prevalent. From January to July 146 deaths were reported from the sixteen principal towns of the district.

**CACHAR.**—There was a slight outbreak in April at Mohammedpoor, Gowaleerpoor, and Bhatixhangorai villages in Hylakandi sub-division. Mortuary returns give five deaths only.

**CHITTAGONG.**—There was no epidemic of small-pox, and the number of cases was unusually small. Most of these were attributable to the inoculators practising in the district, who number 366. Vaccination has made little progress, and the Civil Surgeon, Dr. Allen, as well as the Magistrate, believe that it never will, until the practice of inoculation is made penal.

**NOAKHALLY.**—Only four fatal cases were reported.

**TIPPERAH.**—Eighty-seven deaths were registered. Inoculation has been put an end to by the extension to this place of Act IV. of 1865, but the people evidently prefer it to vaccination.

**LOHARDUGGA.**—There were 272 deaths, which occurred in 19 out of 22 registering stations. Three escaped entirely; no particulars are given.

**MAUNBHOM.**—Small-pox deaths were reported from January to June. 33 inoculators were supplied by the Civil Surgeon with lancets and crusts to enable them to vaccinate in the interior.

The people, however, have a strong prejudice against vaccination, and, notwithstanding the extension to this district in 1869 of Act IV. of 1865, it was suspected that inoculation continued to be secretly practised.

**SINGBHOM.**—There were 223 deaths from small-pox, which is said to have prevailed throughout the year, but not in an epidemic form.

**DURRUG.**—A few cases were reported monthly after April. 36 deaths were recorded.

**NOWGONG.**—Forty-two deaths were reported: the disease prevailed in a mild form and to a moderate extent throughout the year.

**SIBSAUGOR.**—Isolated cases occurred in the district throughout the year, but the disease never assumed an epidemic character.

**KAMROOP.**—At a village (Hajo), 14 miles from the sudder station, there was an outbreak, attended with 31 deaths, in April. Its introduction was believed to be due to two inoculators who had arrived just before from Bengal. Vaccination is carried on both by inoculators and former inoculators who have been taught by the Civil Surgeon. 162 deaths were registered.

**SHILLONG.**—No cases were heard of in the hills. Epidemics of small-pox are said to be common in the villages near Shillong. Vaccination has gained but little ground as yet among the Khasis, but attempts to overcome the prevailing prejudice are persistently made, and will doubtless succeed in time.

**JULPIGOREE.**—There were 54 deaths. Vaccination is said to be accepted willingly, and to be very efficiently carried out.

**GOALPARA.**—There was an epidemic at Lukhipore, having its origin, it was believed, in the importation of the disease by a man who with his mother and sister had come up from the Gowreepoor thana in March. The man became ill immediately after arrival, and died. His mother and sister, and a zemindar's daughter, who had visited them, were next attacked. There were in all 80 cases and 27 deaths.

A vaccinator was despatched to the spot to vaccinate as many as possible, and to re-vaccinate the inmates of the zemindar's house. 118 of the vaccinated persons were afterwards inoculated, of whom 26 were taken ill and 6 died. In the district 96 deaths were reported.

**DARJEELING.**—17 fatal cases were reported. A Lepcha vaccinator employed by the Municipality returned 678 cases.

## SECTION II.

## (c)—FEVERS.

IN 1871, the registered deaths from Fever, amounted to 179,810, and represented 69 per cent. of the mortality from all causes.

The order of monthly mortality from fever and the monthly percentage of the total fever mortality were as follows:—

December	...	15.3	July	...	6.8
November	...	12.9	August	...	6.6
October	...	10.1	February	...	6.4
January	...	8.1	May	...	6.
September	...	8.1	June	...	5.9
August	...	7.4	March	...	5.9

The last three months of the year were the most unhealthy, and contributed 38 per cent. of the year's fever mortality.

The most unhealthy month was December, in which about a seventh of all the deaths from fever occurred, and it was only in January of the present year that abatement was perceptible.

This unusually late persistence of fever was due no doubt to the excessive rainfall, exceptionally high floods, and extensive inundations which characterized the rainy season of 1871. With more water to be got rid of and local drainage impeded, the land remained moist much longer than usual, and during the months of November and December, which were unusually warm, there was probably an increased development of malaria, and enhanced pre-disposition to the disease, from the chill induced by nightly exposure to an over-moist atmosphere. In all the districts where there was an excessive prevalence of fever, there was an excess either of rainfall, or inundation, or both.

It is quite useless to quote or consider the mortuary statistics of, fever in detail. The highest rate of recorded fever mortality is, at Serampore with 11 per 1,000; Beerbhoom follows with 9 per 1,000; Burdwan, which has been visited by one of the most widely spread and devastating outbreaks of fever on record, records a death-rate of only 6.8 per 1,000; and Mymensing, generally known as a malarious district, registers. 5 or  $\frac{1}{2}$  per 1,000!!

A brief notice of fever in 1871, as it prevailed in the various districts of the province, will be found in the following condensed extracts from the sanitary reports of the year.

Those of Midnapore and Beerbhoom are of interest in connection with the fever which has been devastating Burdwan. [Dr. Wise, Civil Surgeon of Dacca, gives a very interesting account of an outbreak of fever in a village or boundary between Dacca and Mymensing, and extended to another village called Porla, in Mymensing. It does not appear from the report that Dr. Wise was personally cognizant of the circumstances attending this outbreak, or that he ever saw persons suffering from the fever; but he evidently believes that it was contagious and allied to the relapsing fever of Europe. I am sorry that he does not give his grounds for this conclusion, both as to its contagious character and its apparent relation to relapsing fever: the more so, because he is not likely to have lightly adopted this belief, and that his opinion is entitled to great weight. In the same report are recorded a short history of four cases of unmistakable typhoid fever among some Goorkhas who were on their way to join the Looshai Expedition. There is a double interest attaching to the narrative; first, from the circumstance that post-mortem examination proved conclusively that the disease was typhoid fever, and secondly, in connection with statements which have been recently promulgated to the effect that the appearance of an alleged contagious fever among coolies employed in the Looshai Campaign was owing to importation among them by coolies from Burdwan of the fever which it has become customary to designate as Burdwan fever. To support this hypothesis, it has been assumed first, that some of the coolies employed in the Campaign were from Burdwan; secondly, that they *must* have had the fever; thirdly, that it was of a contagious nature; and fourthly, that they carried it with them and communicated it to the column. Surely this string of pure assumption is unnecessary in the presence of other known and acknowledged sources for the disease, and here in Dr. Wise's report is one such source clearly indicated. He declares that the disease which proved

fatal to the three Goorkhas, and which was proved to be typhoid fever, so closely resembles a form of fever which is not uncommon in Dacca, that he has no doubt of their identity. If would be strange if none of the other men of the corps, who were exposed to the same risk of contagion, had contracted a disease so eminently contagious as typhoid fever is known to be, and that some of them did so contract it is shown by the fact of two men of the 2nd and one man of the 4th Goorkhas having arrived with it at Kassalong; only the typhoid of Dacca became transformed into the "relapsing" of Kassalong.

Dr. Duka, of Darjeeling, in his interesting Sanitary Report, has remarked on the fever prevalent in Darjeeling: his views are anti-malarial, and I have considered it desirable to quote his exposition of them in full.

• He also directs attention to two cases of a disease, of which we shall see more when malaria is less prevalent, *viz.*, typhoid fever.

**BHAUDULPORE.**—During the drying up of the very heavy inundations from which this district suffered, malarious fevers prevailed very extensively. In October there was a severe outbreak in the Modhopore sub-division, in Kissengunge, and adjoining villages, and at Soongthia outpost, five miles from the station. The fever was of intermittent type, and readily yielded to ordinary remedies. The total registered deaths from this cause were 6,858.

**MONGHYR.**—Did not prevail to an unusual extent. Mortality 2,196.

**PURNEAH.**—In addition to the ordinary fever of the district, there was an increase of malarious fever in October "just after one of the severest inundations Purneah has experienced." It prevailed principally over the inundated area, and its intensity was enhanced by the depressed and destitute state of the people, who swamped out of their villages, were with insufficiency of clothing and food, exposed to very inclement conditions.

The fever was generally of intermittent type, the spleen becoming more rapidly affected than usual, but there was also a considerable proportion of bilious remittent type which was attended with a greater share of mortality.

The people were very apathetic, and preferred remaining on and near their houses to escaping, even when means were specially provided. Food was provided in some cases, and medicines, especially Quinine, distributed gratuitously through the Police, Zemindars, and Planters: the fever was still rife at the close of the year.

2,003 deaths were reported altogether, and of these 694 occurred between October and December.

• **RAJMEHAL.**—The medical officer reports that fevers prevailed during the latter end of the year, during the subsidence of the heavy floods, which inundated great tracts in the district. No localities are mentioned as having specially suffered. Total reported deaths 565.

**DEOGURH.**—The sanitary report does not refer to any prevalence of fever, but mentions the deaths for the year as 2,258, while the mortuary return gives 3,086!

**PATNA.**—No excess of fever. 1,813 deaths.

• **GYA.**—No excess of fever. 5,363 deaths.

**CHUMPARUN.**—Fever of malarious origin prevailed chiefly in that part of the district bordering on the Nepal Terai: here they were of longer duration and less amenable to treatment than in other localities. 3,247 deaths are given in the Civil Surgeon's report, the mortuary return gives 4,827. Fever was most prevalent during the last four months of the year.

**SARUN.**—Fever prevailed in the villages along the banks of the Ganges during the last four months of the year. It was limited to the flooded area. 3,284 deaths were reported.

**SHANABAD.**—There was some intermittent fever at the close of the rains and setting in of the cold weather; it was attributed to malaria, impure water, changes of temperature, and unwholesome food. The total deaths were 2,899.

**TIRHOOT.**—Malarious fevers, with splenic enlargement, were very prevalent at the close of the rains, especially among the poor and most exposed class. There were 3,142 deaths.

• **RAJSHAHYE.**—On the 19th June an outbreak of fever of "an epidemic nature" was reported among villages in Singraha thana, and especially at Kassimpore, Koofail, Enatpore, and Chuckdighee; 350 cases and 51 deaths were said to have occurred in three days.

An experienced compounder, with medicines, was despatched to the locality affected, and more precise information called for.

On the 4th July a steady increase of disease was reported, and further aid applied for : and a native doctor and second compounder sent out, but as unfavourable reports were still received, another compounder was despatched on the 8th July, and a second native doctor on the 14th.

Kassimpore, Shoreppore, Chuekdighee, Doorgapore, Enatpore, Koofail, Bhañanipore, Tajmundee, Magra, Ghosegram, Singrah, Hunespore, and Raghonathpore were the villages most severely affected.

The native doctor reported that there was nothing epidemic about the fever ; it was an aggravation of the ordinary endemic intermittent and remittent fever, with a certain number of chronic cases, attended with enlarged spleen, anæmia, and dropsy. The localities which suffered most are low and marshy. Dr. Bensley adds : " Why in one year (the condition of the people being precisely the same) these diseases should occur with undue severity and moderately in another year, is a mystery as yet, but may probably become intelligible when our acquaintance with meteorology is on a sounder basis than at present. 'Malarious influences alone are insufficient to account for these irregular aggravations. They suffice to account for the occurrence of the so-called malarious diseases, but the aggravation of these diseases at uncertain times, or their epidemic prevalence, must depend on some other cause as yet unknown.' As the disease declined, medical aid was gradually withdrawn ; the last compounder returning on the 15th September.

On the 11th July an outbreak of fever at Godagari was reported, and a compounder sent out : by the 26th July the disease had abated. 6,256 deaths were reported.

BOGRAH.—No history given. 3,984 deaths registered.

DINAGPORE.—" Fever prevailed very much throughout the year." No history or particulars supplied. There were 3,785 deaths.

MALDAH.—During the first six months of the year there was no undue prevalence of fever. In July an " epidemic visitation " of the disease was observed in some villages situate in the two notoriously unhealthy northern thanas Bhangungola and Gazole. In August it prevailed in an " epidemic " form in the southern thanas Shibgunj, Mahodepoor, and Kallunchak : thanas Gomastapoor, Moorchia, and Nawabgunj in the east were next affected, and towards the end of the year it became general over the district. Thana Gazole suffered most. In the old town of Maldah it was very general during and after the inundations of September. The ordinary type was intermittent, complicated sometimes with spleen, liver, lung or bowel affections : more rarely cases of remittent type with low delirium and typhoid symptoms, were met with. There were 1,907 deaths.

MURSHIDABAD.—There was a very severe inundation due partly to excessive rains and partly to the destruction of a bund on the Bhagiruttee, 20 miles north of Berhampore : an outbreak of fever over the inundated tract was reported, and native doctors and medicines were sent out, but the police reports were found to be exaggerated, and comparatively few new cases were met with. The total deaths from this cause were 4,415.

PURNA.—Slight increase in the prevalence of intermittent and remittent fevers followed the subsidence of the heavy floods in the south of the district. 2,053 persons died from fever.

RUNGPORE.—There was no excess of fever. 2,629 deaths were registered.

BURDWAN.—1. *Town and Municipality.* Fever began to increase in June, continued to increase through July, and by the end of August was general both in the town and suburban villages : all classes suffered without reference to age, sex, or caste.

This was the third year of prevalence in the tract round Burdwan, but this year's fever was of a more intense and aggravated character than that of the previous season ; and as many of the sufferers were already debilitated by previous attacks, the mortality was very high. The outbreak reached its climax about the end of October, after which the intermittent fever began to abate, and remittent fever to be more rare.

The poor having no means of providing sufficient clothing or proper food, or purchasing medicine, suffered most, and, in conjunction with the Magistrate, dispensaries were opened at Beldangah and Iacoordie on the 6th August ; and a third, a little later, at Kunchaunugur, a considerable extra-municipal village three miles west of the town.

In 3rd November a fourth dispensary was established in suburb Kaliapolia.

These institutions not only afforded relief to all attending sufferers, but the bed-ridden and helpless were visited at their homes by the native doctors, who devoted two hours a day to that duty.

Between the opening of the dispensaries and the end of the year, 13,000 cases, chiefly of fever and splenitis, were treated in the town and suburbs alone.

2. *In the District.* Fever was reported to be generally prevalent in south Burdwan at the close of July, and a little later it was found that the whole of the thanas Khundghose, Royua, Indas, and Jehanabad were suffering fearfully and greatly in need of relief.

Reports from the north and north-east indicated an almost equally bad state of things there; and this being the third year of prevalence at Munglecote, Cutwa, and Dynchat, the mortality was very high.

At this time also fever was reported in thanas Aosoogram and Bood-bood to the north-west, but was less severe.

The disease was a congestive intermittent or remittent fever, the former being the more common.

The onset of the disease was more violent, and the tendency to congestion of the liver and spleen greater than in ordinary fever; there were also bilious vomiting, nausea, great heat of skin, and jaundice, and all the symptoms of bilious fever. In the early attacks brain congestion was frequent, but the tendency diminished as the season advanced.

There were constant relapses at uncertain periods; the remittent type lapsed into the intermittent, and fever was apt to recur throughout the rains and ensuing cold weather.

The sequelæ of chronic fever were—permanent enlargement of the liver and spleen, anæmia, diarrhoea, dysentery, dropsy, scorbutic condition of the gums, swelling of sub-maxillary glands, and cancerum oris. 13,867 deaths were reported in the district, and 2,032, in the town, 15,899 in all during the year under report.

Dr. Elliott, from whose able and interesting report the above account has been extracted, reviews the various alleged causes of the fever. They are, excessive or deficient rainfall; exceptional seasons, such as that of the Cyclone in 1864; the obstruction to drainage caused by road, railway, and river embankments; changes in the course of large rivers, and the silting up of their tributaries; saturation of sub-soil, &c. He considers that while none of these will account for all the facts observed, fever of similar type has prevailed in localities to which none of them will apply, and has been absent from other places in which they were in full force.

He concludes as follows:—"In a country like Bengal, where the physical conditions of soil are continually liable to change by inundation, rainfall, and silting up of drainage channels, it is probable that a change from time to time occurs in the type of disease among the people, and that during certain periods or cycles, fever is produced of an adynamic and devastating character similar to that now seen in Burdwan, as is known to have occurred in several of the adjacent districts for upwards of half a century. When, during the occurrence of disease, there are aggravating local conditions, such as damp, bad sanitation, the contiguity to dwellings of collections of bad water which has been defiled and made use of for cooking, if not for drinking purposes, it is reasonable to suppose that disease is much influenced and changed in type by the physical condition of the locality.

"Wherever the true cause of fever may rest, whether in soil, air or water, experience in other countries points to drainage of the tract as the chief preventive measure. Whether or not this is practicable in Lower Bengal, I am unable to say; I am doubtful whether any system of drainage likely to be effective could be adopted without producing a change in the general features of the country and interfering with the growth and cultivation of the crop on which the people depend for sustenance.

"Where rice is grown, stagnation of water is necessary, and in places where there is no natural lodgment, artificial dams or embankments are invariably constructed for its detention till the crop springs up and ripens.

"Should a deficiency of surface water-supply be the result of measures adopted for the general drainage of the country, the demand for artificial irrigation will be urgent; if on the other hand some of the large wheels and marshy ground could be reclaimed and the land utilized, drainage would not only prove conducive to health but might be made remunerative."



The measures adopted for the relief of the fever-stricken portions of the district were as follow :—

(a.)—The affected area was divided into three circles of superintendence, *viz.*, Munglecote, Burdwan, and Royna: Assistant Surgeon Robinson was appointed to the first, and by far the largest area, and a Sub-Assistant Surgeon, to each of the others: their duty was to inspect and utilize to their utmost all the dispensaries within their respective circles; learn all they could regarding the disease and the localities in which it most prevailed, reporting from time to time to the Civil Surgeon; and procure and forward to the Civil Surgeon, the necessary returns from the dispensaries.

(b.)—Dispensaries, which at the end of December were 21 in number, were opened in the following villages :—

BURDWAN CIRCLE.—*Municipal*.—Beldangah, Tikurhaut, Katrapotra, Kunchunnuggur, Mahachanda, Pullusce, Seraitikur, and Gulsee.

MUNGLECOTE CIRCLE.—Munglecote, Damhaut, Aoosgram, Arore Mohulla, and Chanuk.

ROYNA CIRCLE.—Royna, Meral, Degulgram, Polashou, Eklokhy, Sreekistopore, Khundghose, and Dharal.

Native doctors and compounders and hospital coolies were supplied to each.

During the last week of the year at least 8,000 patients were attending these dispensaries.

The native doctors were also ordered to visit the bed-ridden and weakly cases at their homes within a radius of two miles from their dispensaries.

(c.)—Municipal Food Relief depôts were opened in September at Sankareepookur and Kazirhaut, and in November at Katrapotra: all destitute and sickly patients were supplied with soup and rice, or milk and rice.

The total applicants to the end of November were 5,148, the daily average attendance being 200.

From the 1st December, the date from which Government provided funds (the previous expense had been borne by the Municipality), to the end of December, the total attendance was 9,381, giving a daily average of 302.

On the 20th December the Sanitary Commissioner, Dr. Payne, visited Burdwan. His report is given elsewhere.

The measures of relief above described were subsequently much increased; ultimately 50 dispensaries and 18 district food depôts were established.

The total recorded deaths are 15,899; but I am perfectly certain that this number does not represent an eighth of the actual mortality.

BANCOORAH.—The only special prevalence of fever was a slight outbreak at Kohilpoor in November, and at Bissenpoor in December. A Native Doctor was sent out and medicines supplied. 3,141 deaths were registered.

BEERBHOOM.—Early in October fever of a severe intermittent type, unknown here hitherto, was reported to be prevalent in the south of the district, but attracted little attention for a time, till it was found to be spreading to the north and west, *affecting specially the part of the district bordering on Burdwan*. In some of the villages in the extreme east of Beerbhoom a similar kind of fever seems to have prevailed for two or three years, but was not so severe or fatal. Dr. Barker visited many of the villages, and was informed that nearly a third of the population had been attacked during November and December, and that so many persons were prostrated that labor could not be secured to cut the paddy; even in January, during a second visit, some paddy was still uncut.

The fever declined in December, and very few new cases occurred; *but relapses were very common*, and many still suffered from fever or its sequelæ, splenitis, enlarged liver, anasarca, diarrhoea, or debility: the mortality was great, probably much greater than is indicated by the mortuary statements.

Rich and poor suffered alike, but medicine, proper clothing, and still better change of air being within the reach of the former, they succumbed less to the disease.

Formerly the fever was mild and limited to the alluvial tract bordering on Burdwan, *but this year it extended to the laterite*, and attacked villages built on a sloping plateau of this formation, elevated 10 to 15 feet above the neighbouring land, which is undulating and almost free from vegetation: their sites being specially selected because its

barrenness and unsuitability to the growth of the staple crop—rice. In this district the sub-soil is very porous, and in dry weather water is fully 20 feet from the surface; so that any lodgment of water in sub-soil hollows or irregularities in such amount as to affect the surface soil prejudicially, is scarcely possible. Dr. Barker considers that the fever could not have been generated where it prevailed, but must have been introduced from Burdwan either by intercourse or through the atmosphere that it found this year in the peculiar rainy season, cloudy weather, and moist atmosphere, especially favourable conditions for its spread; and that having once prevailed, it may recur under less favourable influences. He is of opinion that disease is more frequently introduced by impure drinking-water than is generally acknowledged, and suggests that the Burdwan fever may have been introduced from a fever-stricken individual having visited one of the affected villages, and washed his clothes and person in a tank used for drinking purposes, and so communicated it to the villagers. Dr. Barker urges that the silting up of rivers and water courses will neither account for the enormous area affected, nor for the fact that a village is attacked one year and not another: that if the country be water-logged, vegetation should suffer, and the temperature of the soil rapidly decrease a few feet from the surface, and suggests that the fever having prevailed to a greater extent since the cyclone of 1864, the introduction of salts by the inundation may have given rise to noxious gases and so caused the fever.

For the relief of the infected villages, medicines were in the first instance supplied; but as the disease increased, native doctors were sent to Kushba, Shakoolipore, and Bhanganachutra as head-quarters, with orders to travel and treat the sick within a radius of six miles. A liberal supply of quinine, medical comforts, and brandy was also sent, and money provided for the purchase of food or clothing for the destitute. At the close of the year the disease had abated, but so many chronic cases still required help, that it was proposed to continue the relief till March of the present year. The registered mortality was 6,279.

The extreme importance of this outbreak in Beerbhoom in connection with the fever at Burdwan will, I trust, excuse the length of the above condensed extracts from Dr. Barker's able report.

**HOOGHLY.**—Intermittent and remittent fever first appeared in the Jehanabad sub-division at the end of July, and was most severe at Brijomohunpore, which was visited by the Civil Surgeon and relief provided. About the end of October an increase of fever was reported from Hurripal, Porabazar, Gotunpore, Hasnan, Balagurb, Bakulia, Bonoberiah, British Chandernagore, Kacooally, Dhurrumpore, &c, and from other villages in the sub-division Jehanabad, and native doctors, with a sufficient supply of medicines, were sent out to the different localities to afford relief. Dr. Thompson ascribes the fever to "endemic influences, extreme poverty, and innutrition;" the disease attacked both rich and poor of all ages, but the mortality was almost entirely among the latter, who were unable to obtain the means necessary to their recovery, and lived on bad food, impure water, and were insufficiently clad. Stimulants, food, and clothing were distributed, and as the weather became warmer, the disease abated. The total deaths registered were 5,862.

**SERAMPORE.**—The fever which has so long prevailed in this district, increased greatly during November and December in thanas Buddibaty and Kristonagar, and necessitated the establishment of temporary dispensaries at those places. The Civil Surgeon, Dr. Greene, attributes the fever among the Buddibaty villages to the obstructed drainage of the Singoor Bheel round which they are situated, by the Railway embankment and embanked roads, and that in Kristonagar, which is on the Damoodur, and its prevention by the bund on that river of the annual flushing of the villages by its waters. To these causes he adds the want of nutritious diet, owing to the impoverished condition of the cultivators who, while receiving twice the amount for their produce now, as compared with 30 years ago, pay six times the amount of rent; and contamination of the water by jute manufacture which is carried on indiscriminately, in tanks, khals, bheels, and pools by every road-side. The mortality was 4,336.

**HOWRAH.**—Endemic fever prevailed for a few weeks near Amptah; remittent fevers, as usual, occurred in the cold seasons; but on the whole the district was unusually healthy. The deaths were 1,548.

**MIDNAPORE.**—Malarious fever prevailed principally in the low, densely populated north-eastern pergunnah of Dasspore, which, extending along both banks of the Selye river, resembles Hooghly, with which it is continuous, in sanitary condition, physical aspect, and geological formation.

"From the annual floods of the Selye river it is protected by a bund, the course of which is marked by a long line of excavations filled during the greater part of the year with putrid water and rotting vegetation. I can vouch for this bund being an effectual obstruction to the surface drainage of the country, and it is likely to remain so until properly

sluiced. The drainage of Daspore, however, was equally bad twenty years ago, while, according to the villagers, the fever only appeared in October 1870, at which time I expressed an apprehension, now unfortunately realized, that the epidemic fever of Hooghly was making its way towards the borders of Midnapore."

"The outbreak at Daspore was reported at the end of November. I went there on the 2nd December, and learnt that fever, to an extent greater than was ever before experienced, had prevailed since October. The proportion of deaths in the first cases was very high. I inspected five villages, and found the filthy tanks, rotting vegetation, and offensive odours, common to Bengalee villages, but the houses, raised three or four feet and appearing free from damp, were the best I have ever seen. The people are weavers and were once thriving and wealthy: now, the well-built houses are the only visible signs of prosperity among them; they had the listless manner and cachectic appearance characteristic of the residence of a malarious locality. I saw 300 cases of fever and about as many convalescents."

"It was perplexing to account for the severity of the disease in one house, and its mildness in others subjected to the same insanitary influences. Thus, in one house I found 8, out of 10 occupants, prostrated with fever; in the next, 1 out of 15 had but a mild attack."

"The cases I saw were from six to twelve days' old, and presented the usual symptoms of intermittent fever. The fatal cases were of remittent type, complicated generally with brain or lung congestion. I heard of one case which proved fatal in five days."

"The advance of the disease from Hooghly can be traced with tolerable certainty. I fear that next year Daspore will be again attacked."

"At the end of September the large village of Nowada, 20 miles south-east of the station, was invaded by an epidemic of fever; it increased in October and was then reported: I visited it in November. It consists of 500 houses on the southern bank of the Cossye, but separated from it by a bund, which in ordinary seasons simply serves to obstruct the natural drainage of the country, and in seasons of flood invariably bursts and deluges the country in the vicinity of the breach for miles. Fortunately, there is a considerable fall from the Cossye to the Roopnaryan, into which the water gradually drains. Nowada contains about 4,000 people, of whom 70 are said to have died: it appeared a particularly dirty place, abounding in ill kept tanks, the water of which was drunk by the people: the inhabitants of neighbouring villages which suffered less, drank river water. Tamlook, Mysadul, and the portions of the district which suffered in 1870, were remarkably healthy in 1871."

The deaths from fever were 3,834. I have quoted largely from Dr. Mathews's excellent report, condensing portions of it that I might extract the more. The relation of Midnapore to Hooghly, and of this outbreak of fever to that so long prevalent in Hooghly and Burdwan, render it desirable to record its history fully and completely.

**NUDDEA.**—No epidemic. Mortality 4,639.

**JESSORE.**—In September a bad form of fever broke out in some of the villages near the Kobbaduck river on the west; it lasted about three months, and caused great mortality. The Civil Surgeon who visited the locality in October, reports on the villages of "Gorubpore, Futtehpore, Petumberpore, and Jehangeerpore, as clustered together on a plateau four miles in circumference, and four miles from the Kobbaduck. The plateau is surrounded by bheels, save on the south, where there is a stretch of rice cultivation:" the country had been inundated. The villages contained the usual holes filled with stagnant water and much jungle; bamboos were especially plentiful; the soil was dark, composed chiefly of vegetable matter, the decayed leaves of many seasons' growth: the steamy hot air of the place was perfectly horrible, and it was quite a relief to get out of it. The inhabitants, chiefly blacksmiths and goldsmiths, seemed thriving and well-to-do. "A large number of deaths had occurred, and many of the people were sickly and emaciated, suffering from hypertrophied spleens and ulcerations of the mouth: there were also many cases of intermittent fever." The cold stage is described as transient, while the hot stage was severe and prolonged. "A locality such as this, 5 or 6 feet above the surrounding bheel, might be easily drained; until this is done, and half the vegetation cleared away to enable the sun and air to do their beneficial work, unhealthiness will always prevail and epidemics of malarious fever constantly recur."

Such is Dr. Skipton's description of the locality most severely affected.

There were very heavy inundations in the district, during the subsidence of which fever was very rife. The total deaths were 13,104.

**DACCA.**—There was only one severe outbreak of epidemic fever. Dr. Wise, the Civil Surgeon, reported it to Government in June. He gives the following history of the disease. "On the North-Western border of the Dacca district are two villages—Poila, which belongs to Mymensing, and Terushri, to Dacca."

"The villagers assert that in October 1870, a young man in Terushri was attacked with fever and died in eight days. The disease then spread throughout the village and extended to Poila. In June 1871 the fever became more general: villagers resigned themselves to their

fate, and contented themselves with invoking Hari. What this type of fever was, I am unable to say. It resembled in every particular the epidemic that desolated the village of Jogheer, a few miles to the south, in 1863-66, an account of which was published in the Annual Report of the Sanitary Commissioner with the Government of India for 1866. In many respects it simulates the relapsing fever of Europe. Its epidemic and contagious nature, the frequency of jaundice, the common occurrence of relapse after apparent recovery, are all ordinary peculiarities of both complaints. The Magistrate visited these villages in January 1872, and he states that Poila is a clean, elevated village, with no offensive holes or dense jungle; but that Terushri is in a very insanitary state. The inhabitants at the date of his visit were still sickly and suffering from the effects of fever, but no deaths were happening. The villagers are well-to-do people, and there is no reason for supposing that they were predisposed by scarcity or unwholesome food.

"During the latter parts of October and first-half of November, intermittent fever with congestion of the liver and spleen were more prevalent in the northern mohullas of Dacca than it has been of late years. These parts of the city are buried in luxurious brushwood and tree jungle, and disfigured by stagnant pools; but as these have always existed, it is difficult to assign the fever to their presence.

"There were several well-marked examples of typhoid fever: it is not uncommon in Dacca from November to May. In the Mitford Hospital four undoubted cases were admitted, of which three died. Ulceration of peyers glands was found, and the characteristic eruption detected. All the patients were Goorkhas on their way to join the Looshai expedition, and had been ill about ten days before their arrival here. The filthy state of the drains in Dacca, and the abominable practice of having privy-wells adjoining those used for household purposes, are quite sufficient to account for the presence of typhoid fever. Its existence was long suspected, but the impossibility of making *post-mortem* examination in private practice prevented any decided opinion being formed.

"The results of the examination in hospital having cleared up the only difficulty, whether there was ulceration of the bowels or not, it will be necessary to return this type of fever as typhoid fever. There were two cases of dengue, both imported."

**BACKERGUNGE.**—Fever was less during the year; there were numerous cases in the rainy and cold months, but the type was milder and the disease more amenable to treatment. Spleen and bowel complications were more rare. Mortality 3,999.

**FURKEDPORE.**—No epidemic occurred. Malarious (intermittent) fever existed in the district throughout the year. The total mortality was 1,881.

**MYMENSINGH.**—No unusual prevalence this year. Total deaths 1,160.

**SYLHET.**—Intermittent fever prevailed generally, and to an exceptional extent all over the district. It was very bad in April and May, and also at the close of the rains. The first outbreak is attributed to the lateness of the rains, and consequent drying up of tanks, pools, and swampy places under an extremely hot sun. September and October were the worst months. The disease was mild in type, and but few deaths occurred.

Cases of intermittent fever occurred, but more rarely. Occasionally some fevers of this type, complicated with cerebral or pulmonic mischief, were met with, and were very difficult to treat.

**CHITTAGONG.**—Malarious fever has been prevalent as ever: "few people escaped it, and the whole population has become stunted, ill-shaped, and decrepid, looking as the result of the action of malarious poison on successive generations. There was no unusual outbreak.

Dr. Allen has sent in a very carefully written and interesting report, entering into the topography and history of the district, from which I should be glad to quote some extracts if I had more space. Mortality 7,065.

**NOAKHALLY.**—No unusual fever. Mortality 3,414.

**TIPPERAH.**—Remittent and intermittent fever prevailed throughout the year, but not extraordinarily. The deaths were 2,237.

**CUTTACK.**—No epidemic. Deaths from fever 4,715.

**BALASORE.**—Fever is very common, especially among the inhabitants of the saliferous tract. There were 1,070 deaths reported.

**POOREE.**—Intermittent fever was greatly prevalent in the town and neighbourhood.

The locality is swampy, extensive jheels exist in the neighbourhood: the heavy rainfall, rise of sub-soil water level, and extreme humidity, are the causes assigned for the increase of fever, which however was of mild type and yielded readily to quinine. The mortality was 1,218.

**HAZARIBAGH.**—Fever of intermittent type prevailed in the town during the rains, and lasted till December; it was of a mild form, but the cases were more numerous than usual. Deaths were registered 3,819.

**LOHARDUGGAH.**—Fever always very prevalent here; has not been more so than usual. Total deaths 5,289.

**MAUNBHOOM.**—No unusual fever. Total deaths 2,797.

**SINGBHOOM.**—No epidemic. Deaths 1,948.

**DERRUNG.**—No epidemic. Deaths 762.

**NOWGONG.**—No history supplied. Deaths 748.

**SEEBASAGOR.**—Fever of intermittent type prevailed generally during the commencement and close of the rains. Deaths 1,142.

**KAMROOP.**—No history of unusual fever. Deaths 2,467.

**LUCKIMPOOR.**—No epidemic. Deaths 368.

**KHASI AND JYNTEAH HILLS.**—No epidemic. 88.6 of the admissions to hospital from among the police were due to fever contracted by them while on duty in malarious localities. Deaths 12.

**JULPIGOREE.**—There was an excessive general prevalence of intermittent and remittent fevers, but no local outbreak. Deaths 757.

**GOWALPARAH.**—No unusual fever. There is always some fever prevalent. Deaths 2,287.

**DARJEELING.**—Fever of the intermittent type form "a group of the most prevalent endemic diseases of this district, the generally adopted explanation for such an occurrence being the malarious influences generated in the sub-Himalayan tract covered with impenetrable rank vegetation and swamps, notoriously known as the Terai."

"During the latter months of the present year, particularly in October and November, when visitors from the plains come to the sanitarium, I have observed in good many instances that persons in apparently fair health were attacked with ague and fever a few days after reaching the station: it happened in some cases immediately on arrival at Kurseong.

"The residents of Darjeeling, including the troops in cantonments, were remarkably healthy; and the plausible explanation therefore of these pathological phenomena could hardly be other than that the patients in *passing through* the Terai have been exposed to the influences of the malarious poison which did not take much time to manifest itself.

"In December last an officer on duty came to the station; he considered himself in good health, but after a few days became the subject of a paroxysmal fever of an intermittent type. About the same time a tea-planter from Kurseong, in excellent health as he declared himself to be, came to be operated on for a small hydrocele: on the fifth day after the operation he was able to walk about, the day was cold and chilly; in the afternoon he was attacked with ague, and the paroxysms returned daily at the same hour for several days.

"Many cases like the above might be brought forward.

"In the sanitary report furnished by my predecessor for 1868, it is stated that Europeans living in malarious places (tea-plantations at a low elevation are meant) never get fever, except when visiting Darjeeling. Again, European children born and bred at Darjeeling, never leaving the place, have been known to have had attacks of ague.

"Yet Darjeeling, at an elevation of more than 7,000 feet, cannot surely be supposed to be malarious, at any rate not more so than the tea-plantations in the Terai; the universal healthy appearance and longevity of the acclimatised residents, and the rosy cheeks of the children, exclude the possibility of a malarious hypothesis as it is understood now: what is then the causation, that ague is developed at a place which is free from "bad air?" Supposing the "malaria" to be a compound of hydrogen and carbon, by its very specific gravity it could hardly ascend to a stratum of atmosphere where the barometer stands at 23.339.

"The hill stations of the Western Himalayan range, whether the climate is dry, present no such pathological phenomena; and if they do, they are very rare. During my tour of duty at Simla in 1867 and 1868, I hardly recollect a case of ague in a visitor arriving in fair health at that sanitarium: my experience at the Sanawor military asylum with its European population, amounting to nearly 500 souls, was the same.

"Facts like these very naturally lead one to ask, what can be then the immediate cause of these paroxysmal fevers? What is malaria? Is it a poison resembling the virus of small-pox or of typhoid fever? Or, is it simply a manifestation of certain derangements of the vital functions of each individual system, brought on by atmospheric conditions, such as cold,

excessive damp, electrical tension, added to which a frame probably weakened by causes having the tendency to disturb the balance of natural function, particularly those of assimilation and elimination-producing symptoms, which we are wont to call *ague* and fever?

"It seems presumptuous in the face of generally accepted faith in the existence of ague-producing malaria, whatever that may be, to venture a different opinion as to the etiology of that disease, yet even in the absence of exact meteorological data, which it would be most desirable to possess, one cannot help being led to the conclusion that a state of the atmosphere, saturated with humidity and a certain indication of the thermometer, and probably of the barometer *also*—conditions, which disturb or check the free action of the skin—are the chief, if not the sole, agents in producing in *this area* the pathological symptoms, attributed to that unknown agency which goes by the name of '*malaria*.'

"I believe that the function of the skin, that most important organ whose influence plays such an important part on all the internal viscera, should be taken more account of. Take an organism which for months in the tropical heat has to depend for its eliminative functions, on the forces of its integumentary organs, placed suddenly into a temperature, in which the same important functions have to be performed by other organs, probably not quite up to the task on an emergency. Are not the accumulated products of decarbonizing process and of decay under *such* conditions, the cause and origin of the pathological manifestations known as symptoms of intermittent fever, which conditions, if continued, will induce ague-cachexia and its sequelæ? Nature's curative process is directed at an effort of elimination, by means of vomiting, sometimes purging, but *always excessive skin* action.

"I have dwelt at some length on the climate, atmosphere, and pathological phenomena, as they presented themselves to my view during the last season at Darjeeling. I would simply mention here that Assam, Rungpore, Dinagopore, and other districts of Bengal, which fall par excellence within the endemic area of intermittent fevers, are subject to well-marked atmospheric changes, when the most sickly season sets in. Towards the end of the rains when sudden chill-producing currents of air traverse those areas, ague becomes universal. The low-lands of the Maremma and the Campagna of Rome, whence we have obtained the hypothesis of malaria, are most dangerous when damp, coldish fogs hang over them at night, the temperature of the day being considerable. As along the eastern coast of England—formerly more so than now—so on the swampy borders of the Danube and Theiss in the east of Europe, the greatest number of ague cases occur towards the autumn, when the sun is almost as powerful in the mid-day hours, as it was during the dog days, whilst the nights are very dewy and cold.

"The same conditions of humidity and lowered range of temperature, therefore, will to my mind account for the same results here as there; and, believing that my conclusions are not based on a misconception, I would sum up the practical deductions as follows:—

"The ague-producing poison is not generated as a positive entity in the atmosphere, but is the result of impaired vital functions in each individual organism, caused by certain atmospheric influences upon the human frame,—influences the exact relation of which it will be the work of future observation *with the aid of more exact meteorological data*, to elucidate and to explain.

"The prophylaxis would consist mainly in sufficient protection of the skin and in habits of life which do not tend to impair the regular performance of vital functions. Irregular habits, intemperance, and excess of any sort, poverty, want, and exposure, are certain predisposing causes of the invasion of this disease.

"The treatment of uncomplicated acute ague, if I may call it so, is clearly eliminative; brisk emetics and diaphoresis are indicated previous to the adoption of such means, febrifuges, as is well known, are of little avail.

"With the above remarks I leave this important matter at present, hoping that future observations and further experience may enable me to speak with greater certainty on the subject.

"EPHEMERAL FEVERS appear under the same conditions here as elsewhere, and are most frequent among children. I saw no case of a bilious *remittent*, but two undoubted cases of *enteric fever* came under my care during the year, both in young men under 30 years of age and of pure European parentage,—one in the month of April, the other in July; the latter was mild, but the former lasted for twenty-five days, and became complicated with pneumonia.

"Both cases ended in recovery. The disease was distinctly traced to the use of polluted water, which, in the graver case, happened to a degree amounting to wanton carelessness."

## SECTION II.

## (d) BOWEL COMPLAINTS.

*Bowel Complaints.*

17,838 deaths from this cause were registered in 1871, the proportion to the deaths from all causes being 6·8 per cent., and the ratio per 1,000 of population ·27.

The months of greatest prevalence were—

	Deaths.		Deaths.
December	... 1,852	April	... 1,452
November	... 1,619	February	... 1,437
September	... 1,580	July	... 1,381
January	... 1,572	May	... 1,370
October	... 1,538	March	... 1,335
August	... 1,447	June	... 1,250

There is no doubt that during the close of the rains and cold weather, death from bowel complaint is very common, and that the deaths under this head are very much under-registered. Some have been registered as cholera, but these would account for a very small share of the deficiency.

The six districts in which the greatest number of deaths from this cause were registered, were—

Serampore	1·8 per 1,000.	Durrung	... 1·08 per 1,000.
Sechsaugor	1·8 „	Darjeeling	... 1·06 „
Singbboom	1·6 „	Kamroop	... ·95 „

Conspicuous among those in which there has been least registration of these diseases, are Mymensing and Ruugpore, each with 0·2 per 1,000.

(e) *Injuries.*

13,478 deaths from injury, were recorded in 1871, and formed 5·1 per cent. of the gross mortality from all causes. The ratio per 1,000 of population was 2. Of these, 6,764 deaths were among males, and 6,714 among females.

The kinds of injury which occasioned this mortality, and the number of deaths chargeable to each, were as follows :—

	Deaths.	Ratio per 1,000.
Suicide	... 1,392	·02
Wounding	... 718	·01
Accident	... 4,914	·07
Snake-bite	... 6,425	·09

Of suicides there were 21 per million, rather less than a third of the proportion of deaths from this cause in England, where it is 66 per million. 536 of the deaths or 39 per cent. were among males, and 856 or 61 per cent., among females.

This preponderance of female suicides prevailed in every division but one, *viz.*, Burdwan; while in Cooch Behar, Assam, Chota Nagpore and Chittagong, the sexes were nearly equal.

There is a considerable difference between the various divisions as regards either real or reported suicide, as will be seen from the following list :—

Cuttack Division	... 50 per million.
Presidency „	... 40 „
Chota Nagpore „	... 30 „
Burdwan „	... 20 „
Rajshahye „	... 20 „
Dacca „	... 17 „
Patna „	... 16 „
Cooch Behar „	... 10 „
Assam „	... 10 „
Chittagong „	... 10 „
Bhagulpore „	... 7 „

I am compelled to the belief that the differences are due in the main, to neglect in the registration. Cuttack, which has the highest district mortality from suicide, records 81 per million. Balasore, the adjoining district, has a ratio of 19 only. Nuddea, which stands next to Cuttack, has 74 suicides per million; while Rungpore (which should be a happier place than it is popularly believed to be) registers only two deaths from suicide, or less than two per million.

Of the 748 persons who died from wounding, 438 were males and 310 females.

Of the 4,914 deaths from accidents, 2,605 were males, and 2,319 were females.

Of the 6,425 deaths from snake-bite, the majority, 3,239, were females, 3,186 males.

The gross mortality from snake-bite was at the rate of nearly 10 per 100,000 of population.

The following list shows the order of greatest mortality in the Bengal divisions :—

Presidency Division	...	...	...	17	per 100,000
Cuttack	"	...	...	16	"
Burdwan	"	...	...	12	"
Rajshahye	"	...	...	12	"
Chota Nagpore	"	...	...	12	"
Assam	"	...	...	10	"
Bhagulpore	"	...	...	7	"
Dacca	...	...	...	6	"
Pâtna	...	...	...	6	"
Cooch Behar	...	...	...	6	"
Chittagong	"	...	...	4	"

Among districts, the ten in which there were the greatest number of deaths from snake-bite were—

Nuddea	...	24 per 100,000	Moorshedabad	17 per 100,000.
Howrah	...	23 "	Bogra	17 "
Rajshahye	...	22 "	Jessore	16 "
Kamroop	...	21 "	Midnapore	15 "
Cuttack	...	20 "	Bhagulpore	15 "

and the ten districts which record least mortality from this cause were

Seerbsangor	...	1 per 100,000	Luckimpore	3 per 100,000
Shahabad	...	2 "	Sarun	3 "
Rungpore	...	3 "	Tipperah	3 "
Chittagong	...	3 "	Sylhet	3 "
Durrun	...	3 "	Burdwan	3 "

It is worth noting, as bearing on the question of compulsory registration, that in the case of deaths from injury, where failure to report might lead to suspicion and entail punishment, the registration is more efficient: here, for the first time is seen a proportionately correct registration of female mortality. In deaths by snake-bite and from suicide, the female deaths preponderate; in accidents they are as they should be, a little less numerous than the male deaths.

#### (f) Other Diseases.

Under the above heading 27,366 deaths were registered in 1871, but the figures included 2,276 still-births; the actual deaths therefore, ascribable to other diseases than those already enumerated, viz. (cholera, small-pox, fever, bowel complaints, and injuries including snake bite,) were 25,090 or 9·5 per cent. of the gross mortality, and 38 per 1,000 or 38 per 100,000 of the population.

It is idle to speculate on the probable causes of death which are included under the above common heading: the numbers registered are absurdly small, when it is borne in mind that they represent the supposed mortality from all brain, throat, lung, heart, liver, kidney, and urinary diseases from scrofulous, tubercular, rheumatic, cancerous and venereal affections, and from dropsy, joint ailments, tumours, &c. &c.

While, however, it is only too apparent that there is a deficient registration under this head, and there is also no doubt that the diagnosis is a very rude and chancy one, still it is equally clear that the diseases which are thus registered are very independent of seasonal influences. It will be seen from the following list that the variation in the monthly number of these deaths is very trifling indeed, and I think this may be considered as indicating that the selection of the cases is better than might reasonably have been expected :—

January	...	2,110	July	...	2,420
February	...	1,969	August	...	2,534
March	...	1,991	September	...	2,114
April	...	2,144	October	...	2,290
May	...	2,107	November	...	2,084
June	...	2,223	December	...	2,750

I have appended to this report, in the absence of the usual vital statistic tables, simple statements indicating the amount of monthly mortality from every cause as registered during 1871, in each district of the province.

It seems to me desirable that they should be printed for future reference and comparison.



## SECTION III.

## THE METEOROLOGY OF THE YEAR.

For the following brief sketch of the chief meteorological characteristics of the year 1871, I am entirely indebted to the admirable report of Mr. H. F. Blanford, Meteorological Reporter to the Government.

It consists of almost verbatim extracts from the report referred to, with the omission only of such portions of the text as did not refer to Bengal.

*Atmospheric Pressure.*—"Was above the average during January and February at all stations except Darjeeling, and during March at all except Darjeeling, Chittagong, and Monghyr.

"In April it remained lower at Hazareebaugh, and to a less degree at Cuttack, Calcutta, Dacca, and Patna, but was relatively higher than the average at Darjeeling, Chittagong, Monghyr, Jessore, and especially so at Berhampore.

"In May it was generally above the average, and most so at Berhampore and Monghyr.

"In June it continued higher at Berhampore, Monghyr, and Darjeeling, but fell everywhere else, and was especially low at Cuttack and Dacca.

"During the south-western monsoon it was above the mean at Chittagong, Dacca, Jessore, Monghyr, Darjeeling, and, except during the month of July, at Berhampore also.

"In October and November the pressure was everywhere below the mean, and in December also, except at Cuttack and Patna.

"In 1871 the actual distribution and changes of sea-level pressure were as follows, so far as the Bengal province was concerned :—

"In January and February the barometric depression that usually exists over the lower Gangetic plain was more marked and extensive than usual, and in March, in common with that of all Northern India south of the Himalayan, fell below that of the stations on the Arracan and Coromandel Coasts—a change which does not usually occur till the following month.

"In April and May the lowest pressure was over Hazareebaugh, and the lower part of the Son Valley.

"In June the lowest pressure was at Arrah and Gya, and ranged below 29·5 at Hazareebaugh and over the lower part of the Son Valley.

"In July and August it was lowest at Arrah and Dehree, which stations marked the locus of greatest depression in an area of low pressure which embraced the whole of the Gangetic plain.

"In September the pressure rose everywhere.

"In December, Dehree, Darjeeling, and Shillong, attained the highest pressure, while the lowest was at Gawalpara."

*Temperature of the Air.*—"In January 1871, the mean temperature of the Delta was a little below the average of the four years, the greatest depression being at Jessore. It was also below the same average at Cuttack. On the other hand, on both coasts of the bay and in Behar, the temperature was somewhat higher than the average.

"In February, the temperature was above the mean everywhere. The greatest excess was at Berhampore, and at this place Dacca, Hazareebaugh, and Patna, it exceeded 2°.

"In March and April the temperature again fell gradually below the average; first, in the Delta and lower part of the Gangetic plain; and afterwards, more generally, Patna, Hazareebaugh, and the stations on the east side of the bay, being the last to remain above the mean.

"In May, owing doubtless to the early commencement of the rains, the depression of temperature below the average was universal, amounting to between 3° and 4° at Cuttack, Jessore, Hazareobaugh, Berhampore, and Monghyr. All the stations enumerated, except Patna, and temporarily one or two other stations, continued to enjoy a temperature below the average up to the end of the rains.

"In October, however, the fall of temperature was less than usual, and November and December were warmer than usual at nearly all the stations enumerated, especially at Cuttack and Patna."

*Temperature of Solar Radiation.*—"As compared with the preceding year, for which alone complete observations are available, the temperature of solar radiation was generally greater in January and February 1871, and generally less in May. In June, and more or less throughout the rains, it was less at places lying south of the latitude of Calcutta, and greater at places to the north."

*Humidity.*—"The deviation of the humidity of each month of 1871 from the average at different stations appears to have been very irregular. The humidity was exceptionally high at Patna during the first five months of the year, equal to it in July and August, and below the average during the last four months.

"It was generally a little above the average in February, except at Dacca and stations on the coast line.

"In March this was the case only in the Delta and lower Gangetic plain.

"In April this excess increased, and in May and June was very general.

"During the rains the difference became less, and in October the humidity was generally at or a little below the average.

"In November and December the humidity was somewhat greater than usual at False Point, Sangoi, and Calcutta; in November at Darjeeling also; but at Patna decidedly below the mean in both months.

"On the whole, in 1871, the air was unusually moist."

*Serenity.*—"In 1871, January, March, and October, the two latter months especially, were of more than average serenity; while from April to September the cloud obscuration was in excess of the average almost everywhere, except at Darjeeling. The other months, February, November, and December, show variable differences."

*Rainfall.*—"The rainfall of 1871 was unusually heavy in Northern India. In Calcutta it was the greatest on record, exceeding even that of 1868; and in many parts of the country the floods on the low-lands were of such extent and depth as to breach the railways and cause serious interruption to the traffic.

"In the tea districts of Eastern Bengal, in Lower Assam, and in the intervening plateau of the Khasi Hills, the rainfall was considerably below the average. Cherrapunjee received less than three-fifths of its usual quantity. In Upper Assam the excess was very great, amounting to one-third more than the average fall.

"In Orissa, again, as far west as Sambalpoore, the rainfall was somewhat below the average; while it was greatly in excess in the western part of the Gangetic Delta, in Chota Nagpore, in Northern Behar, and Tirhoot: it was exceedingly heavy at Chuprah, where it was more than double the average quantity, and at Sewan.

"January was a dry month throughout Bengal, and February scarcely less so. In March there were some heavy showers, especially in the Midnapore district; and in Lower Bengal the rainfall in the month was about twice or three times the average quantity. In April the rain was frequent and copious, and extended over the whole of Bengal and Behar. May was in all respects like an average June, except in the districts north of the Delta and in Assam, where, with local exceptions, the fall was not heavier than usual. From this time up to September the rain poured on steadily in somewhat greater quantity than usual, and in the latter month, just before the close of the rains, an excessively heavy fall took place in Tirhoot and the adjoining districts of Chuprah and Chumparun. The last three months of the year, on the whole, were over than usual."

*Wind.*—"The winds of Bengal, during the first three months of 1871, were such as are usual at the time of year, except that in the early part of January they were somewhat more northerly.

"In April the fall of atmospheric pressure in Behar and Western Bengal was accompanied by a great weakening of the land winds in that region, and by a veering of those of the Delta towards south-south-east and south-east. In May there was a decided excess of easterly elements, and in the latter half of the month the winds were such as characterize the south-west monsoon, but more easterly than usual, especially in Behar. During these months the velocity of the winds was much below the average, and this again is characteristic of the monsoon as contrasted with the hot weather. This excess of easterly winds continued during June, and it was not until July that the monsoon assumed its normal character. On the return of the winter monsoon in October and November, the land winds set in much as usual in Behar, but in Bengal were less steady, and up to the close of the year the west or north-west winds were weaker than the average."

Civil Surgeons have been good enough, in most instances, to supply me with tabular records of meteorological observations, and such of them as I could readily utilize I have re-produced here. The remainder vary so much in form, and in the kind and value of the material they contain, that I am unable to reduce them to one common form; and as the printing of each of them separately would entail considerable expense, and be attended with no commensurate advantage (for they do not admit of ready comparison) I am compelled to omit them.

I propose, in order to obviate this difficulty in future, to circulate among Civil Surgeons a simple form of meteorological return, to be filled up and appended to the sanitary report: it will cause no additional trouble, and will ensure the provision of such data only, as are really requisite, and as will admit of profitable comparison.

---



## The Meteorology of the Year—(Continued).

MONTHS.	TEMPERATURE OF AIR.				HUMIDITY.		RAINFALL.		WIND.		COMPARISONS.			MORTALITY.		
	Mean Pressure.	Mean. Max.	Mean. Min.	Range.	Mean.	Actual.	Average.	No. of Days.	Velocity.	Direction.	Baromet. Temp.	Humidity.	Rain-fall.	Cholera.	Small-pox.	Fever.
<b>PATNA.</b>																
January	29.887	75.1	45.6	29.5	61.5	60.7	62	73	62	0.05	...	...	...	1	5	93
February	752	82.4	51.5	30.9	68.4	66.2	54	65	41	0.02	...	...	...	2	17	75
March	676	83.8	56.3	27.5	71.6	70.6	62	62	1	0.02	...	...	...	3	20	87
April	574	100.9	68.0	32.9	85.4	83.7	64	64	3	1.20	...	...	...	15	35	112
May	491	108.0	71.6	36.4	84.9	87.0	64	61	9	4.90	...	...	...	101	55	147
June	313	98.8	76.9	21.9	88.2	87.2	68	68	9	0.93	...	...	...	61	32	144
July	390	98.8	76.4	22.4	89.9	84.1	83	83	20	0.97	...	...	...	14	6	130
August	423	89.0	76.0	13.0	84.1	83.4	83	83	12	7.41	...	...	...	17	4	157
September	478	86.8	73.8	13.0	82.2	82.3	83	82	18	1.84	...	...	...	25	1	225
October	646	87.8	68.8	19.0	81.2	78.9	69	74	2	7.80	...	...	...	17	1	191
November	773	81.9	51.9	27.0	72.0	68.9	67	66	...	7.98	...	...	...	42	...	245
December	872	73.0	40.8	29.2	64.0	61.8	62	55	1	0.14	...	...	...	30	9	507
									79	35.03	...	...	+23.80	333	185	1,813
<b>MORRHUT.</b>																
January	29.923	78.9	52.4	21.5	63.1	62.8	61	61	79	...	...	...	...	1	1	158
February	748	81.5	58.8	22.2	70.3	68.5	63	63	...	0.10	...	...	...	...	...	123
March	684	86.0	61.6	27.4	76.4	67.1	48	48	...	...	...	...	...	...	...	106
April	604	90.2	71.1	25.1	81.1	81.7	62	62	3	1.28	...	...	...	...	...	133
May	530	91.0	73.5	20.5	83.5	80.5	66	66	5	1.80	...	...	...	...	...	120
June	368	83.1	78.4	14.7	85.1	86.2	79	79	9	0.80	...	...	...	...	...	140
July	389	87.8	77.9	9.9	83.2	84.1	87	87	19	1.85	...	...	...	...	...	187
August	480	87.5	78.8	8.7	83	83.8	86	86	15	12.50	...	...	...	...	...	176
September	520	86.8	77.3	9.5	81.9	87.8	89	89	18	1.15	...	...	...	...	...	30
October	650	87.7	73.1	14.6	81	80.4	74	74	1	0.18	...	...	...	...	...	177
November	802	83.4	62.4	20.9	72.6	71.4	61	61	...	...	...	...	...	...	...	254
December	907	74.8	53.9	20.9	64.3	63.5	63	63	72	58.02	...	...	+18.83	177	43	348
										30.10	...	...	...	...	...	299
<b>DACCA.</b>																
January	29.959	77.9	54.2	23.7	67.3	67.5	65	69	45.2	...	...	...	...	10	11	169
February	866	85.5	60.9	24.6	75.0	72.8	67	67	34.4	...	...	...	...	3	12	109
March	836	88.4	66.9	21.5	78.5	76.8	65	65	4	110.1	...	...	...	21	10	133
April	770	90.0	71.0	19.0	81.9	82.0	77	77	12	13.60	...	...	...	106	27	230
May	676	86.0	73.1	12.9	81.9	83.6	83	83	13	1.08	...	...	...	97	16	218
June	534	86.9	76.5	10.4	82.8	83.5	85	85	20	19.30	...	...	...	...	...	136
July	567	86.6	76.3	10.3	82.6	83.2	86	86	24	18.90	...	...	...	...	...	10
August	611	87.9	76.7	11.2	83.5	83.8	88	88	13	15.1	...	...	...	...	...	136
September	685	87.5	76.5	11.0	83.4	83.2	87	87	12	1.91	...	...	...	...	...	11
October	787	87.3	73.3	14.0	81.6	81.6	79	79	7	7.09	...	...	...	...	...	188
November	930	83.5	63.4	20.1	75.1	71.9	69	69	...	...	...	...	...	...	...	12
December	30.002	78.4	54.6	23.8	68.1	68.5	66	61	1.05	75.33	...	...	+0.67	103	17	394
										81.90	...	...	...	497	114	2,364



## The Meteorology of the Year.

MONTHS.	TEMPERATURE OF AIR.				HUMIDITY.		RAINFALL.			WIND.		COMPARISONS.				MORTALITY.			
	Mean Pressure.	Mean Max.	Mean Min.	Mean.	Aver. Mean.	Actual.	Actual.	Actual.	Aver.	No. of Days.	Direction.	Barometer.	Mean Temp.	Hadt.	Rain fall.	Cholera.	Small pox.	Fever.	Bowel Complaint.
January	29.065	79.5	50.7	64.7	66.0	60	...	...	...	...	N. NW. NNW.	-0.29	-1.3	...	...	2	6	1,126	14
February	801	80.9	58.9	72.3	70.8	66	0.31	...	...	3	NW. W. N.	-0.81	+1.5	...	...	3	7	759	6
March	835	91.7	67.1	78.6	78.9	67	5.84	...	...	6	S. W. NW.	-0.15	-0.3	...	...	16	8	774	10
April	767	92.7	74.0	82.1	82.3	76	3.26	...	...	7	S. SE. W.	+0.14	-0.2	...	...	60	7	849	31
May	785	94.7	75.5	85.1	85.3	81	9.58	...	...	10	S. E. E.	+0.08	-0.2	...	...	73	5	873	11
June	523	88.2	75.4	81.9	83.5	80	23.08	...	...	29	SE. S. E.	-0.14	-1.6	...	...	6	3	745	6
July	530	88.3	76.4	82.4	83.3	83	13.47	...	...	21	SE. S. W.	+0.01	-0.7	...	...	1	2	703	13
August	600	88.5	79.0	83.0	83.2	88	16.09	...	...	20	SE. S. W.	+0.03	-0.1	...	...	7	11	875	8
September	677	88.4	78.6	83.7	82.8	87	5.25	...	...	17	SE. W. E. N.	+0.38	+0.5	...	...	...	7	1,443	10
October	793	88.1	74.6	81.1	80.8	82	6.11	...	...	9	N. NW. NW.	-0.20	+1.7	...	...	486	5	1,351	37
November	883	85.3	69.5	77.7	72.0	75	...	...	...	...	N. NW. NNW.	-0.29	+1.7	...	...	1265	4	1,373	22
December	30.086	79.3	53.3	65.6	64.7	75	83.00	64.91	122	...	N. NW. NNW.	+0.10	+0.9	...	+18.08	1806	64	13,191	189
January	29.023	78.4	54.9	65.9	65.3	68	...	...	...	...	WNW. W. WNW.	-0.05	+0.6	0	...	3	...	181	26
February	841	80.1	61.2	73.5	70.7	68	0.02	...	...	1	W. NW. N.	-0.85	+2.8	+2	...	3	...	160	13
March	776	92.5	64.5	78.0	78.2	71	1.23	...	...	3	W. SW. S.	-0.14	-0.2	+1	...	2	29	181	14
April	690	97.5	71.4	83.1	83.5	80	3.49	...	...	5	S. SW. SSW.	+0.14	-1.2	+7	...	7	3	222	9
May	612	93.4	75.6	84.5	84.3	81	0.22	...	...	13	N. E. N. E. S.	+0.44	-3.6	+8	...	6	3	130	11
June	453	90.7	70.3	80.5	80.8	83	1.83	...	...	24	N. E. N. E. S. S. E.	+0.11	-1.4	+4	...	24	0	174	11
July	478	89.8	79.1	83.2	84.0	80	14.31	...	...	21	N. E. S. S. E.	+0.04	0	+1	...	4	1	203	8
August	537	89.8	79.3	84.1	84.1	86	12.11	...	...	24	N. E. N. E. N. N. E.	-0.11	-0.3	0	...	1	...	203	8
September	613	89.4	79.3	84.1	84.1	86	15.77	...	...	19	N. E. N. E. N. W.	-0.27	+0.6	-3	...	23	1	370	15
October	742	89.3	78.4	82.3	81.7	85	1.82	...	...	3	N. N. E. N. E. N. W.	-0.81	+1.3	0	...	290	...	891	37
November	877	85.5	65.5	75.5	73.5	72	...	...	...	...	W. NNW.	-0.81	+1.3	0	...	270	...	1,022	23
December	989	78.3	56.5	67.0	66.2	70	...	...	...	3	NNW. W. N.	-0.14	+0.8	0	+15.94	980	46	4,415	186
January	29.032	79.1	62.2	69.3	70.2	69	...	...	...	...	NNW. NW. NNE.	-0.53	-0.9	0	...	22	26	470	149
February	863	89.7	67.5	78.6	78.4	69	0.56	...	...	3	SSE. SSW. SW.	-0.16	+0.4	+3	...	9	25	332	131
March	808	94.3	75.8	80.7	80.1	64	0.43	...	...	3	SSE. S. SSW.	-0.07	-0.4	-1	...	15	43	329	129
April	701	90.9	70.2	80.7	80.0	70	5.77	...	...	7	SSW. S. SW.	-0.07	-1.2	+3	...	9	28	323	132
May	680	99.2	78.1	84.3	85.8	74	4.20	...	...	12	SSW. NW. S.	-0.81	-1.6	+5	...	18	14	271	104
June	483	93.8	78.5	84.3	84.0	85	7.44	...	...	13	SSW. SW. W.	-0.63	-1.5	+3	...	9	11	263	83
July	573	90.7	77.6	84.1	84.0	85	15.32	...	...	24	SSW. SW. W.	-0.65	-1.3	+1	...	2	9	836	79
August	680	90.7	77.7	84.0	84.0	83	6.83	...	...	8	SSW. WSW. S. W.	-0.46	-0.8	+2	...	...	2	363	95
September	704	89.2	77.4	82.4	82.4	85	9.67	...	...	1	SSW. S. SW.	-0.67	+0.2	-4	...	6	...	403	108
October	822	89.2	75.6	81.7	81.5	82	0.91	...	...	4	NNE. NNW.	-0.67	+0.2	-1	...	...	13	556	118
November	901	89.9	65.6	77.1	71.6	67	...	...	...	...	NNE.	-0.68	+2.5	-1	...	...	9	775	140
December	979	87.0	61.7	73.5	69.6	67	0.18	53.27	106	...	NE. NNE. N.	-0.85	+3.9	0	-3.88	25	212	4,706	1,342

LONDON.

BIRMINGHAM.

GLoucester.

CALCUTTA.											
January	29.987	77.1	69.8	173.3	68.8	66	66	...	...	...	162
February	906	84.0	66.7	173	73.3	68	66	...	...	...	180
March	850	88.7	72.1	166	79.7	71	67	...	...	...	84
April	771	90.7	76.7	140	83.0	80	73	...	...	...	81
May	677	91.3	77.3	140	83.8	85.0	81	...	...	...	238
June	523	87.3	79.3	74	83.8	83	84	...	...	...	30
July	551	88.3	79.4	74	83.8	83	87	...	...	...	263
August	403	90.3	80.0	106	83.0	83	88	...	...	...	95
September	646	87.3	79.3	80	83.5	88	88	...	...	...	81
October	805	87.1	77.1	100	81.8	79	80	...	...	...	107
November	954	83.5	69.6	139	76.1	73	71	...	...	...	352
December	30.046	77.7	61.8	159	68.5	70	68	...	...	...	163
								...	...	...	108
								...	...	...	223
								...	...	...	1,400
								...	...	...	4,249
								...	...	...	33
								...	...	...	8
								...	...	...	9
								...	...	...	8.30
								...	...	...	5
								...	...	...	2
								...	...	...	3
								...	...	...	11
								...	...	...	15
								...	...	...	21
								...	...	...	3
								...	...	...	33
								...	...	...	14
								...	...	...	35
								...	...	...	3
								...	...	...	101
DARJEELING.											
January	23.371	55.3	34.1	21.5	42.9	72	77	...	...	...	4
February	357	55.4	36.4	16.0	46.1	63	81	...	...	...	4
March	337	53.2	40.1	13.1	43.2	50.4	69	...	...	...	2
April	343	61.1	47.5	16.6	55.9	56.1	75	...	...	...	6
May	309	65.2	52.3	12.9	55.8	60.2	80	...	...	...	6
June	342	69.3	55.3	10.7	63.4	63.3	92	...	...	...	5
July	243	69.6	59.3	10.4	63.1	63.9	93	...	...	...	14
August	255	69.1	55.7	10.3	63.2	64.0	91	...	...	...	15
September	246	68.1	55.7	12.4	61.2	62.1	90	...	...	...	25
October	398	67.3	48.9	17.4	55.4	58.0	71	...	...	...	67
November	416	57.7	42.6	16.1	40.4	60.2	81	...	...	...	33
December	426	54.0	38.0	18.0	43.9	44.0	73	...	...	...	31
								...	...	...	11
								...	...	...	35
								...	...	...	3
								...	...	...	40.3



On the whole, the past year has been characterized by early and excessive rainfall, a temperature lower during the hot months and rains, but somewhat above the average during November and December, a greater amount of humidity and of cloud, more easterly winds in April, May, and June, and generally throughout the year weaker winds than usual.

Of these conditions that which has exercised the greatest influence on the health of the people, is the rainfall. The heavy rains in Northern India have raised the flood-levels of the Ganges and its tributaries, and impeded local drainage; the local rainfall has been excessive, and partly from obstruction to the surface drainage, partly from inundations, large tracts of country have been submerged. In such tracts the loss of crop, temporary scarcity, and the exposure of the scantily clad people to an exceptionally damp atmosphere, has lowered vital power and predisposed them to disease; and during the drying of such tracts, fevers of the kind known as malarious, have broken out with great severity, and caused an unusual amount of mortality.

Prolonged chilling of the surface and interference with skin transpiration in exactly similar localities have induced, as the soil slowly dried, an excessive prevalence of bowel-complaints, often erroneously attributed to cholera.

I shall not attempt to trace any special relation between local meteorological conditions and disease. Even if our data as regards climate and disease were perfect, the present state of our knowledge would hardly admit of it. For many years to come we must be content to collect and store accurate observations regarding them, and in time their relation to each other will be apparent enough. Attempts in this direction at present partake too much of the character of guesses, and are so often proved wrong by subsequent experience that science is unjustly discredited.

The most favorable opportunity, and one that should never be neglected for tracing the relation between climate and disease, is when exceptional sickness attacks a station at which there is an observatory; it is at such places that the most reliable meteorological data are obtainable, and if the disease were carefully watched and studied in connection with changing climatic conditions, there is no doubt that we should soon arrive at a knowledge of the nature and extent of their association.

The kind of problem that now most frequently presents itself, is of this kind,—Given, the meteorological records of a fairly drained, dry, well-cleansed station, and disease of very doubtful character reported (at a period long passed by) in a remote and undescribed portion of the same district—Required to express clearly and accurately the relation between them. Few (if any) climatic conditions more directly influence health than the hygrometric condition of the air, especially in connection with low temperature. Tyndall has shown that, "comparing molecule with atom, the absorption of heat by a molecule of aqueous vapour is 16,000 times that of air;" so that cold, damp air, by chilling the surface, checking skin action, and inducing visceral congestion, is a very potent cause of disease; but the proportion of moisture in the air depends much on purely local conditions, not to be predicated by any amount of scrutiny of the meteorological records of another place, though it were only a few miles away.

So that until meteorological observers are multiplied, disease more accurately reported, and some agency capable of efficient local investigation constituted, the discovery of the relation between meteorology and disease must depend on our making good use of such opportunities as present themselves in those stations where there are standard instruments and skilled observers.

The value of meteorological observations depends on the accuracy and uniformly unbroken regularity with which they are taken. A Civil Surgeon has so many emergent unforeseen demands on his time, that he cannot personally charge himself with this duty, and the satisfactory and trustworthy performance of it by a jail native doctor is out of the question. If, however, a mortuary clerk were allowed to Civil Surgeons and trained to the duty, and his work examined from time to time, there is no reason why thoroughly good records should not be forthcoming. The observations take little time,—the clerk would be at his desk daily, always present at the prescribed periods, the observing and recording would not occupy him more than an hour a day: he would be under constant supervision, and the gain in the value of the records would be very great.

## SECTION IV.

## FOOD-SUPPLY.

I have no precise or reliable information regarding either the food-supply, its price, or the price of labour in the various districts of the province. In a few of the annual reports passing allusion in general terms is made as to the character of the crops, and in one (Chumbarun) the actual price of the common articles of food is mentioned, but it is not compared with the average price in other years; while, in the majority of the reports, there is no reference to the food-supply.

In Gya, Shahabad, Faridpur, Mymensing, and Cachar, the crops are reported as abundant. In Chittagong, Nowgong, Sibsagar, and Kamroop, they are said to have been fair, or sufficient, or up to the average.

In Rajmehal the early setting in of the rains, and in Rajshahye, Pubna, and Kooshtea, inundations, injured the crops, and food was slightly dearer than usual. In Rungpore, paddy, mustard, tobacco, and jute, were abundant, and the produce about the average; yet food is said to have been on the whole dear.

\*I compiled a table of the comparative prices of food from the weekly food reports of the *Calcutta Gazette*, but the result has weakened my faith in the reports to such an extent that I cannot make use of them. For instance, at Bhagulpore the average price of the cheaper pulses for three or four years is 47 seers per rupee, in Monghyr, only 36 miles away, and with free railway communication, the same pulses are during the same years quoted at 13½ seers, nearly thrice as dear. Again, the prices of 1871 indicate a difference of 18 seers dearer (38 per cent.) at Bhagulpore, and of 16½ seers cheaper (123 per cent.) at Monghyr. If the prices refer to the same pulses, there *must* be some error, (though the district officers say not); if they do *not* refer to similar pulses, the table is useless.

From the absence of remark on the subject in most of the sanitary reports, it may be concluded, on the principle, that "no news is good news;" that the food-supply of the year was at least equal to the average, and that, except over small areas of inundation where there was local loss of crop, there was no distress or scarcity.

This is a very different matter, however, from the far more important question—*What* is the food-supply? What are its constituents? Are they in kind and proportion such as are needed for the development and maintenance of physical vigour, or have changes which have been going on during the last 20 years, caused the daily food of the people of parts of this province to be deprived to a dangerous extent of some of its most important principles, till health has become undermined, and life, except in diminished numbers, is no longer possible?

This is a very momentous question, to which no very conclusive reply can be given in this report; it is one which calls for very careful and accurate enquiry, especially, as insisted on by Dr. Saunders, Deputy Inspector-General of Hospitals, with reference to its bearing on the excessive prevalence in Lower Bengal during late years of a very fatal form of fever, and will be considered in a future report.

## SECTION V.

## PERSONAL PROCEEDINGS, 1871.

Dr. D. B. Smith was on a tour of inspection during January and the early part of February, and visited Cachar, Dacca, and Chittagong.

In April he was appointed to officiate as Civil Surgeon of Howrah, but continued to perform the duties of Sanitary Commissioner till July.

In July Dr. A. J. Payne was gazetted to officiate as Sanitary Commissioner. He took charge of the office on the 26th of that month, and continued in it throughout the year.

He visited Hooghly and Burdwan on a mission of enquiry into the cause of the outbreak of fever in those districts, and examined about 25 villages.

Exclusive of mere ordinary matters of reference, the principal reports submitted in 1871 were as follows :—

- (1.) By Dr. D. B. Smith.—A memorandum on the advisability or otherwise of converting a portion of the valley situated to the east of Shillong into a large lake, in which, on sanitary grounds, Dr. Smith discountenanced the project.
- (2.) By Dr. A. J. Payne.—A report on the preparation of a cholera map, of uniform design, for the several provinces.
- (3.) A report on the proposal of the Sanitary Commissioner with the Government of India, to convert the Vaccine Department into a Health Department, which was expressive of complete concurrence in the proposed measure.
- (4.) A report on the condition of fever-stricken villages inspected, and upon the probable cause of the endemic fever prevalent in Hooghly and Burdwan.
- (5.) A memorandum on the introduction of earthen raised beds into jail sleeping wards.

Report No. 4, on the Burdwan and Hooghly endemic fever, is appended in full : it should, I think, be printed for future ready reference.

From DR. A. J. PAYNE, Officiating Sanitary Commissioner for Bengal, to the Secretary to the Government of Bengal, Judicial Department,—(No. 394, dated Calcutta, the 30th December 1871.)

SIR,

I HAVE the honor of reporting, for the information of the Hon'ble the Lieutenant-Governor, that on the 18th instant I left Calcutta for the purpose of visiting the fever-stricken districts of Hooghly and Burdwan.

2. On my arrival at Hooghly I ascertained from the Commissioner and the Civil Surgeon that the fever was declining both in the neighbouring villages and the interior of the district, with the exception only of Jehanabad, which place could be more easily reached from Burdwan. It was determined, therefore, that I should inspect a number of places where the disease had been very prevalent, which lay at short distances from the station, in preference to occupying the time at my disposal by a longer journey. Accordingly, in company with the Civil Surgeon, Dr. Thomson, I visited the places named in the margin.

Shagung, Khamarparrah, Bancheriah, Bandal, and Keota. The jail, police lines, civil hospital, and Main Bazar, Mogultolly, Chinsurah, Tolahatuk, British Chandernagore, Khoosung, Katgollah Ghât, and Dhurraimpore.

3. Everywhere the fever was abating. Although in some of these neighbourhoods it had been very prevalent, it was not generally regarded as having been so fatal as

in 1869. The features and the effect of the disease were those which have been fully described in previous reports. The enlarged spleens, the dropsical limbs, and the pallid, bloodless condition of many of the sufferers, left little ground to hope that death could be long deferred, or to doubt the character of the malady. It was gratifying, however, to listen to the terms in which the people mentioned the timely aid they had received this year. Without being questioned on the point, they spoke freely and gratefully of the early medical treatment afforded to them as the reason of the diminished fatality of the sickness, and frequently recurred to it in the conversation I held with them. This was particularly the case at Katgollah Ghât, from whence I learnt that some of the most alarming newspaper accounts of the fever had emanated.

4. At one place only, where there was a temporary dispensary, was it said that the daily number of attending patients was on the increase. There it was noticed that the cases were more or less chronic; and further enquiry brought out the fact, that the distribution of efficient remedies and of good food and clothing was rapidly becoming more known (it was an outlying dispensary), and that the larger numbers merely represented the sick of a daily enlarging area. The dispensary had been in existence about a month.

5. In the town bazars and throughout the villages, even in the narrow byways, a high degree of cleanliness prevailed; there was not a foul sight or smell to be found. To say that jungle grows about the houses, that dwellings are clustered round small ponds in which the water is now scanty and looks unclean, that the banks of the ponds are covered to the water's edge with vegetation, which, in well-favored localities, would be described as luxuriant, but in the presence of disease must be considered rank, is merely to say that the broad features of an ordinary Bengali village were not wanting here. It must be added, however, that the more noxious belongings of such places in general were conspicuously absent. The ponds were not mere shelving hollows where water had lodged, and the receptacles of all excreta and refuse matter from the houses. They were clean cut little tanks, with margins nearly perpendicular, shaped out and cared for by the municipality, and the appearance of the water was merely that which follows of necessity on evaporation and vegetable growth. Moreover, these villages were all within easy reach of the river; and river water was used for domestic purposes by the inhabitants, who were well acquainted with the tide period at which alone the river water is good.

6. I am well aware that this is not a description of an ordinary district village. It may not be true of any single remoter place where the fever has been most destructive, but it is important, in estimating the influence of the more obvious superficial conditions of insalubrity in causing this fever, to note that it prevails in places where there are no such conditions, and where, as far at least as the surface of the ground and the habits of the people are concerned, sanitation has not been neglected.

7. It was remarkable, also, that whenever enquiry was made into the classes of people who suffered most, there was but one answer—rich and poor had suffered in equal proportion. Among the dispensary patients this point of course was not illustrated. Food, stimulants, and clothing, were with them an essential part of treatment; indeed they constituted the whole of it when the stage had passed at which quinine is effective. Necessarily, also, when fever had carried off the working members of many families, destitution was one of the early consequences of the disease; but nowhere was there evidence that scarcity of food was in any way connected with the first appearance of the sickness. That a malarious fever may first attack weakly and ill-fed members of a community need not be doubted, and that its fatality will in given cases, in some degree, be determined by the previous condition of the person attacked, is equally certain; but this is very far from conclusive of a want of nourishment as a primary cause of the disease; and the fact attested by all the officers whom I met, that the people of Hooghly and Burdwan have of late years been in much better circumstances than formerly they were, makes it necessary to look elsewhere than in the general physique of the population for the true cause of the present state of the districts.

8. Another point very noteworthy among the events of this season is that several villages, formerly severely visited, have now escaped with little or no sickness. Of this Pundooah is an example. Nor has the disease this year shown the same disposition that was evident in 1869 to infest the bank of *khale* to the comparative exemption of places distant from water-courses. I could not ascertain that any material difference was observable in this respect.

9. Passing on to Burdwan, I kept in view the same object which had guided me in Hooghly—namely, to learn by observation and enquiry how the events of the current season are bearing on the several hypotheses that have from time to time been put forward in explanation of the origin and character of the fever.

10. The names of the places visited in this district are given in the margin. They are all at short distances from the station. Mahachand, the farthest, being distant only eight miles. Here, as in Hooghly, the most perfect cleanliness was observable; but there was the important difference, that there was no

Khazeelaut, Kartirapukur, Lakooda, Paharpore, Deeranikron, Mirzapore, Kunchun Nuggur, Mahachand, Haldangah, Burkeola, Golahaut, Bungpoor, Hiiipoor.

broad river to furnish drinking water—small and gradually drying tanks and ponds the only available resource. The numerous dispensaries and food depôts were in active work, and evidently in the full appreciation of the people; but the complaint which oppressed the local officers was, that there were not enough of these, and that all the medical resources at the command of Government would fall far short of what was required to diminish the frightful mortality which had not yet begun to abate in the district. The particulars of the medical work already accomplished will have been fully reported by the Deputy Inspector-General of Hospitals, with the designs which have been formed for extending it. I confine myself to

stating the conclusions to which, in my opinion, past and present events point as to the origin and means of prevention of the fever.

That a fatal fever has of late years become endemic, with seasonal outbreaks of extreme severity over a large tract of country which includes districts formerly among the healthiest in the provinces, and that the fever, though traceable in the local history for many years as an influence of varying but moderate intensity, has only of late assumed a devastating character, points forcibly to some change which has been gradually at work in the physical condition of the tract, and is commensurate in extent, or nearly so, with the prevalence of the sickness. As observation proceeds in successive years, it will no doubt be proved, as it is already strongly indicated, that all attempts to localize the causes by comparing the results in different spots within the infected tract lead only to inadequate views of the magnitude of the evil, and of the scale on which preventive measures to be effective must be applied. A crowded or dirty village here, and poverty and foul drinking water there, may, and doubtless do, by predisposing the human system to any taint that may threaten it and impairing its resistance, determine in some degree the local features of the disease when it comes; but if such things be held up as the cause of the specific fever, contradiction will arise in the history of other years, when places similarly predisposed are less severely visited, and of other places simultaneously visited with no such predisposing cause. It is necessary to regard the circumstances of the whole tract affected, and to treat such local things as incidental and capable of influencing only the incidence of the fever among classes and places.

With this view a cause sufficiently wide and potent is not far to seek. It is one which has already been brought to notice by medical officers, and with peculiar force by Dr. Smith, the Sanitary Commissioner, and one which I venture to think the events of each succeeding year tend more and more to bring into absolute demonstration, viz., the gradual conversion of a well-drained, healthy, and prosperous tract of country into the condition of the Lincolnshire fens of many years ago, with a sub-soil water-lodged and exhaling marsh poisons for the population to absorb.

14. It needs but little penetration to see that the people are suffering from the disease, which is well known in fenny regions, and from its equally well known accompaniments and consequences; nor can the dry appearance of the immediate surface soil be long a source of deception, for every way-side puddle shows that there is stagnant water within a foot of the surface even at this season of the year; and the general state of the sub-soil is a matter of necessary inference. So far the connection between the state of the ground and that of the people is obvious enough, and the remaining point for inquiry, viz., the manner in which this state of things has been brought about, is scarcely less clear from the reports of the engineers who have surveyed the fever districts. That there has been gradual silting up of the natural drainage outlets, is an established fact. It is on record that some of the water-courses, which now are unequal to the drainage of the fields or their banks, were formerly navigable by large vessels; and that the progress of this evil should have been greatly accelerated by the Damoodah embankment, is but a natural result of intercepting the mass of water which annually scoured the channels and maintained their depth. An opinion prevails on the spot that the embankment through other means has caused the fever. It is thought that a healthy influence in the annual supply of fresh water by inundation, filling the tanks, and cleansing the lands, has been lost, and that the fertilizing effect of the river silt is removed, to the impoverishment of the land and of the people; but these two beneficial agencies are indirect in their relation to malarious disease, and it is not necessary to include any such in estimating the effects of embanking the river, for, by the mere mechanical process of scouring the channels, the inundation must have without doubt provided that for want of which the districts are now to all appearance suffering gradual depopulation.

## SECTION VI.

### SANITARY PROGRESS.

I regret to have little to record under this head ; no very rapid advance can be expected at present.

Sanitation in India is, in its general application, very young as yet, and is moreover highly unpopular.

It has in the minds of the people an unpleasant connection with taxation, which renders them very intolerant of such practices as jungle-cutting, latrine-building, tank conservancy, and the provision of special (and necessarily somewhat distant) sites for burial or cremation. To have to carry water from a distant tank, instead of resorting to the coffee-coloured liquid in the hole near the door ; to be compelled to substitute the far off latrine and a certain amount of publicity for the neighbouring plot and its late veil of jungle ; to have to walk half a mile to every burial or burning and leave the margin of tank or khal unpolluted ; to see the hole at the door, so convenient hitherto as a receptacle for refuse, suddenly filled up, and twenty-one years' associations destroyed in a moment ;—all these changes do inflict a certain amount of real discomfort, the more keenly felt from the tenacity with which these people cling to and cherish old customs, and from its association with the abhorrent *Taccas*. To be made uncomfortable and to have to change old habits are bad ; but to have to pay for them also is intolerable.

All this sort of feeling was to be expected, and has had—nay has—its counterpart in England. The greatest obstacle to sanitary progress is the ignorance of the mass of the people. Here, in India, where they are addicted to a number of unhealthy habits, of which they are as tenacious as of life itself—steeped in superstition which compels them to ascribe disease and pestilence to a malign supernatural influence, with a god for cholera, another for small-pox, and in fact for almost everything that afflicts them, they are unable to connect their suffering with the existence of local causes, or to conceive of human agency as competent to remove them. The diffusion of knowledge, and especially of the principles of physical science, will eventually abolish the superstition which now prevents their perception of even the most elementary truths : the process will be gradual no doubt, and, so far as the country at large is concerned, the sons and grandsons of the present generation will pass away before sanitary legislation can be efficiently put in force.

A very great want, just now the most pressing of all, is accurate vital statistics, and the most important forward step in the past year has been in the direction of removing it.

In August 1871, a circular order was issued by His Honor the Lieutenant-Governor, directing that, in order to obtain "real information regarding the rate of mortality, we should try to get approximately correct returns of deaths in certain limited areas in each district, in which also the census should be taken with exceptional care and accuracy.

"In each district the Magistrate should select one or two such areas, taking as far as possible average tracts, neither unusually healthy, nor unusually unhealthy, as compared with the rest of the district, and such as are most easily got at and supervised. If possible, the Lieutenant-Governor would like at least one town area and one country area in each district ; the greatest care should be taken to get the census very correct in those areas, and arrangements should be made for recording the deaths within them very correctly. The general returns of the whole districts will go on as before, but the returns of the special areas will be distinguished."

Unfortunately, it has not been possible to arrange for the collection of these statistics for 1872, but from the 1st January 1873, we may hope to prepare, month by month, vital statistics regarding these selected areas, which shall be really reliable, and to obtain from them an approximately correct notion of the comparative mortality of each district and of the general mortality of the province. The experience acquired in collecting the statistics of these areas will be a valuable aid in determining the kind of change that the present agency may require in order to render it uniformly efficient, and the amount of expenditure that may be necessary for that purpose.

I am of opinion that it would be advisable, during the coming year, to cause all the thana station returns to be submitted separately, distinct, that is, from the rest of its registering area. The presence of an inspector of police, or a head constable, and of a better class of policeman than the village chowkeydar, gives such places a great advantage over

outside villages in the matter of registration, which should therefore be very fairly carried out. This separation in the returns would enable the civil surgeon or myself to detect shortcomings or inaccuracies, and to refer them for enquiry; and this special supervision, to which the thana constables would be subjected, would teach them how to check the village returns and look after the chowkeydars.

The village returns, too, should, I think, be carefully translated, and neatly entered in a book kept for the purpose in the Civil Surgeon's office, so as to admit of ready reference. Without this I do not see how a Civil Surgeon can effectively check the returns. I am very unwilling to recommend any measure that will increase the already heavy amount of clerical work that devolves on the Civil Surgeon, and which the multiplication of reports and returns during the last ten years has quintupled. Having not only to write reports and returns, but to copy them, sometimes more than once, and he has little leisure for the scrutiny or supervision of Mortuary Returns. If a Mortuary Clerk were allowed to each civil surgeon, the compilation of statistics would be better done, a thorough system of check would be rendered possible, and errors on discovery would be at once referred to the police for correction. I hope that His Honor the Lieutenant-Governor may be pleased to favourably consider this suggestion.

The frequent occurrence of epidemic disease among the numerous Juggernath pilgrims that annually flock to the town of Poorce, and the absence of adequate accommodation for them which led to a very dangerous degree of overcrowding, having rendered special legislation necessary Bill, Act IV. of 1871 was framed in Bengal last year, and came into force in 1871, giving the local authorities the power of enforcing the observance of sanitary regulations in pilgrim lodging-houses. There is no doubt that under its provisions, properly carried into effect, there will necessarily result a great lessening of pilgrim sickness and mortality. During the present first year of its working there has been a remarkable freedom from disease, but the civil surgeon attributes the change to favourable climatic influences rather than improved sanitation. Further experience will determine the value of the measure, but everything depends on the energy of the local officers, and the intelligence and care with which they carry out the provisions of the Act.

The Hooghly Drainage Act, having received the assent of the Viceroy on the 28th March 1871, has come into operation during the year.

A sanitary report has been received from every district, except the 24 Pergunnahs.

Many of these reports are very interesting, and evince great care and interest on the part of the writers in tracing the source and describing the character and course of local outbreaks of disease. Almost all afford indication of a great and increasing interest in sanitation. Those furnished by Dr. Wise of Dacca, Dr. Russell of Gya, Dr. E. C. Bensley of Rajshalye, Dr. T. Mathew of Monghyr, Dr. Allen of Chittagong, Dr. J. Elliot of Burdwan, Dr. R. G. Mathew of Midnapur, Dr. Thornton of Shahabad, Dr. Greene of Serampore, and Dr. Duka of Darjeeling, were exceptionally excellent.

There are still, however, certain desiderata with regard to sanitary reports, to which I may here advantageously direct attention. These are—

1. Punctuality in their submission.—Many were very much behind hand in 1871: they should reach my office not later than the 15th February. Unless they are so submitted, they can scarcely find place in my annual report, which, for the future, must reach Government on the 15th April.

2. Precision and accuracy in reporting local outbreaks.—In the case of cholera or small-pox for instance, the date of the first and last cases in each village or locality, the history of the first case, a distinct statement of any and what attempts were made to trace the origin of the disease in each place, the tendency of the disease to spread, and its course when it does; the number of cases and deaths actual or approximate, and a brief account of the prevalent meteorological conditions, should always be recorded. Such statements, as that disease "appeared in the north of the district in the latter months of the year and caused considerable mortality," are of course valueless.

3. Greater uniformity in meteorological returns.—At present there are almost as many different forms as districts, and the elements of these forms vary almost as much. After many attempts to utilise these returns for 1871, I have been obliged to abandon the

endeavour as hopeless. This will be best obviated by my circulating a blank form to be filled in and submitted with the annual report, which will be as simple as possible, and need give no additional trouble.

Where a Civil Surgeon can himself observe and record meteorological phenomena, the data are reliable and valuable; there are so many sudden demands on his time that he cannot possibly do this. Observations recorded by native doctors are, as a rule, untrustworthy.

The most valuable data we now possess, are those supplied from stations where there is a trained observer under the civil surgeon's supervision. If a mortuary clerk were supplied to each station, he could be trained to this work, would always be at hand to make a record of the necessary observations, and, if standard instruments were supplied, accurate results would be guaranteed.

Of course these remarks do not apply to those stations in which there is a trained meteorological observer, and from which the returns are reproduced in their proper place in this report.

4. Information about the crops, price, and supply of food.—The majority of the reports ignore this matter entirely; what is required, is a general statement as to the character of the crop of each common article of food, its average price in ordinary years, its actual price in the year under review, and a notice of any scarcity that may have prevailed, and of its causes and consequences.

I may add that I have been directed to submit in future any sanitary reports which are especially interesting and valuable for the perusal of His Honor the Lieutenant-Governor.

The following brief notes on local sanitary measures are extracted from the district annual reports:—

**BHAGALPUR.**—The bad and insufficient water-supply of this station has been partly remedied by the sinking of six pukka wells in appropriate localities; they are sufficiently deep to ensure the retention of 15 feet of water in the driest season of the year. The cost was Rs. 1,000 per well. As funds become available, the number will be increased.

New burial-grounds in suitable sites, at a distance from the town, have been provided.

A new slaughter-house has been built at Mollachuk.

Conservancy has been much more efficient.

**MONGHYR.**—Nine dry-earth latrines have been erected for the use of the general community, and two others for the servants of European residents have been built in the Fort.

They are arranged so as to separate the solid and liquid excreta, which are disposed of on three separate sites leased by the Municipality for the purpose.

Slaughter-houses on the Delhi plan are in course of construction.

There has been great improvement in the conservancy of the town.

**PURNAH.**—No sanitary improvement recorded.

**RAJMEHAL.**—Old ditches and holes have been further excavated, shaped, and converted into tanks.

An attempt is being made to obviate the swampy state of the land south and west of the jail by the construction of new drains.

**DEOGHUR.**—A municipal committee was constituted in January 1871.

Pilgrim serais have been built in selected localities outside the town. The construction of the chord line of railway has been productive of sanitary benefit to the town. Pilgrims no longer arrive, as heretofore, in large bodies, or wearied and exhausted by foot-travelling, and predisposed to disease as heretofore, and the mortality among them has greatly diminished.

Measures have been taken to prevent the pollution of tanks and wells.

**PATNA.**—No improvement reported.

**GYA.**—This town has been greatly improved as regards conservancy, owing partly to the introduction of the mahalla system, and partly to the exertions of the Municipality in supervision. The drainage also has been improved.

**CHUMPARUN.**—No improvement reported.

**SARUN.**—No improvement reported.

**SHAHABAD.**—Many of the main roads have been metalled; tanks have been cleansed; drains cleared and deepened, and measures taken to prevent the pollution of tanks or wells. Conservancy carts have been provided. Better ventilation and purer water-supply have been introduced into the jail, with marked benefit to the health of the prisoners.



**RAJSHAHIE.**—The water-supply and conservancy of Nattore have been improved,

**BOGRAH.**—No improvement reported.

**DINAGEPORE.**—Roads have been widened and drained, tanks cleansed, and the marsh land on both banks of the river has been drained. The sanitary condition of Dinagepore is said to be far in advance of that of the large towns in the district, for which the civil surgeon urges the necessity of forming municipalities.

**MALDAH.**—An attempt made to drain the town failed. The only advance has been the erection of one public latrine.

**MURSHIDABAD.**—A plan for draining the station of Berhampore into the Gogra nullah, at a cost comparatively trifling in proportion to the sanitary benefit that will accrue, has been devised by Mr. Wickes, the Executive Engineer, and submitted for the consideration of Government.

**PURNA.**—Jungle has been cleared, tanks cleansed, and new roads constructed. There has been an improvement in the general sanitation of the town.

**RUNGPORE.**—There was a project on foot for the drainage of the bheels and half dried-up beds of old rivers that surround Rungpore, and render the sudder station the most unhealthy place in the district; but unfortunately the probable cost (Rs. 30,000) exceeded the means at the disposal of the Municipality.

It is to be hoped that the matter will not be allowed to fall through.

**BURDWAN.**—The civil surgeon at this station is not a Municipal Commissioner, and has no means of becoming acquainted with the proceedings of the Municipality.

He reports that three public latrines have been built on an improved plan, and that a fourth is under construction: the night-soil is buried in trenches, and the land utilized by being formed into a garden.

Improved carts have been provided for the removal, at a profit to the Municipality, of the night-soil from the private houses in some of the mahallas, and thus abolishing the prevalent and mischievous system of deep and neglected cesspools.

**BANCOORAH.**—No information.

**BIRBHUM.**—A large tank, a mile to the west of the town, has been purchased, and its water preserved for drinking purposes.

Conservancy has improved in efficiency.

**HOOGHLY.**—An incinerating apparatus for burning night-soil at some of the public latrines is said to be working successfully.

Arrangements have been made to prevent the contamination of tanks.

Two new roads have been opened out, and drains have been widened and kept clear.

Under the provisions of Act V. of 1871—"The Hooghly Drainage Act—" measures are being taken to secure the efficient drainage of the interior of the district.

**SERAMPORE.**—Several roads have been metalled, a new drain constructed, and a site allotted for the disposal of night-soil. Dilapidated and neglected houses formerly used as latrines have either been pulled down or repaired. Hollows containing stagnant water have been filled up. A canal for the drainage of some stagnant bheels has been projected, and is under consideration.

**HOWRAH.**—Several new latrines have been constructed; the excreta are deposited in pans, but are not mixed with dry-earth or any other deodorizer, and are carted away daily. The alternate disposal of them is not reported.

There is a scheme under consideration for the better drainage of the district, and a loan of Rs. 270,000 has been applied for on this account.

The town drains have been improved and their level adjusted; public latrines are under construction, and arrangements in progress for the removal of night-soil from private houses. Some foul tanks have been filled in, and others have been cleansed and deepened.

**NUDDEA.**—New roads have been opened, several tanks cleansed, and jungle cleared.

**KOOSHTEA.**—None. The civil surgeon remarks that the thorough cleansing of the station and tanks by the inundation has been productive of great sanitary benefit.

**JESSORE.**—Nothing reported. There was a scheme proposed for the improvement of the Bhyrub river, and public subscriptions to a considerable amount were promised in aid of this most desirable undertaking.

It will be a great pity if the matter be allowed to lapse.

**24-PERGUNNAS.**—No report.

**DACCA.**—None reported.

**BACKERGUNGE.**—Two dry-earth latrines have been provided in the town, the excreta being buried in ground, which is to be converted into a garden.

A piece of land has been set aside for cremation.

Tanks have been set apart exclusively for drinking purposes.

The main drains have been cleared and jungle removed.

**FARIDPORE.**—None.

**MYMENSING.**—Jungle has been removed, and the cleansing of the town more efficiently done.

Levels were taken with the view of introducing a thorough system of drainage, but the proposition broke down for want of funds.

**SYLHET.**—No improvement has been effected in the district.

Tanks have been cleansed and jungle cleared by the Municipality in the sudder station, but the little that has been effected has been done in the face of much opposition from the native community.

**CACHAR.**—Sanitation is improving, good roads and drains are in course of construction and stagnant pools have been filled in.

**CHITTAGONG.**—A few public latrines have been constructed, and greater attention paid to conservancy.

**NOAKHALLY.**—No progress.

**TIPPERAH.**—Tanks have been cleansed and set apart for drinking purposes; drains have been cleared, and drainage improved by construction of new drains; hollows have been filled and stagnant pools done away with; streets and lanes have been widened, and jungle removed. Inspection of bazars and hâts has been more regular and effective.

**CUTTACK.**—None.

**BALASORE.**—No information.

**POOREE.**—Act IV. of 1871 (B.C.)—The Pooree Lodging-house Act—was, with the aid of a little conciliation, brought into operation in the town. "It provides for the better regulation of lodging-houses, as regards the number of their occupants, their cleanliness, inspection, and control during epidemics, and also by fees, fines, &c., for the raising of a fund for the sanitary improvement of the town." An available sum of Rs. 6,500 has thus been realized for expenditure on latrines, the erection of a model lodging-house, and the provision of a reserve fund, to accumulate yearly, and be applied to the improvement and widening of streets, &c.

**HAZAREEBAGH.**—No information.

**LOHARDUGGA.**—New drains have been constructed and old ones cleansed: jungle has been cleared, and an old closed-up lane near the jail re-opened: old holes and tanks have been filled up.

The removal of the jail to a healthier site is in contemplation.

**MAUNBHOOM.**—None.

**SINGBHOOM.**—None.

**DURRUG.**—Pucka drains have been constructed in the principal streets, tanks cleansed, a large piece of low ground near the station has been drained, and the overgrowth of jungle repressed.

**NOWGONG.**—None.

**SEBSAUGOR.**—No information.

**KAMROOP.**—None.

**LUCKIMPORE.**—A drainage system has been introduced: jungle has been very extensively cleared both in and around the station.

**KHASI AND JYNTEAH HILLS.**—A latrine for servants was erected, but is not much resorted to.

**JULPIGOOREE.**—There is not only no progress recorded, but from the Civil Surgeon's remarks it would seem there is no attempt whatever at sanitation.

**GOALPARAH.**—Several tanks have been cleansed and repaired, drainage improved, and jungle removed.

**DARJEELING.**—A market-place has been provided, and arrangements made for its supervision. Sanitary rules, based on those in force at Murree and Simla, have been adopted. A conservancy inspector was appointed for the season, with good results; and rubbish and stable refuse are collected and burnt in kilns.

## Deaths from "Cholera" during the year 1871.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	REMARKS.
Thangulapore	1	1	2		15	21	8	13	127	171	108	9	420	Returns incomplete.
Monghyr				1				35	4	68	19	43	177	
Buxar		4				2	1	1	2	11	55		177	
Rajmahal		4	13	13	14	61	6	17	9	13	23	8	106	
Deoghur	1	1	8	15	101	14	14	17	25	17	42	30	333	Returns incomplete.
Patna	1	1	2	31	32	249	103	118	62	29	10	2	638	
Gya	5	1	1	3	4	3	3	4	1	7	64	40	30	
Champaran	1	3	1	4	130	9	11	5	5	77	42	91	922	
Samt	2	1		5	11	49	22	1	80	119			632	Returns incomplete.
Shahabad	42	11	12	17	8	11	1	24	14	385	540	490	1,546	
Tirhoot					36	11	22	26	9	80	56		135	
Rajshahiye	15	13	14	27	51	8	56	17	25	13	46	71	337	
Bogra	3	3	2	1	4	24	4	1	11	84	254	170	683	Returns incomplete.
Dinaghpore	3	3	2	7	6	24	4	6	20	80	260	270	689	
Maldah	3	3	2	7	8	24	4	6	15	14	77	270	456	
Moorshedabad	11	5	19	30	242	26	13	7	5	2	21	28	617	
Pabna	7	6	8	262	10	4	3	7	3	1	12	91	144	Returns incomplete.
Rangpore	2	1	4	6	1				3	1	1		38	
Baridwan	2	10	8	4	1				3	1	2		61	
Bacoorah	4	14	7	1	2	4	20	18	4	55	21	163	228	
Berithoom	1	4	4	1	4	3	6	35	35	71	43	117	328	Returns incomplete.
Hooghly	5	9	17	9	2	1	2	20	71	47	60	120	393	
Serampore	1	2	11	15	2	6	6	21	63	41	7	20	66	
Howrah	16	27	11	18	14	1	2	3	4		49	433	511	
Midnapore	2	14	6	8	14	3	3	3			7	465	1,306	Returns incomplete.
Nuddia	5	2	6	8	73	6	1	14	19	37	56	103	427	
Jessore	3	3	16	65	17	7	8	4	5	4	6	81	288	
24-Pergunnahs	20	47	51	37	97	27	1	1	6	23	17	370	519	
Dacca	10	3	21	153	54	30	20	15	9			58	250	Returns incomplete.
Backergunge	13	3	6	53	23	30	15	6	14		1		39	
Furzedpore	3	2	6	49	23	4	5	1	2		2		44	
Mymensing	23	3	6	33	35	4	15	6	3		1		61	
Sylhet	1	1	1	1	12	16	1	1	2		2	32	94	Returns incomplete.
Chachar				14	6		1	1			2	6	192	
Chittagong	9	6	3	14	6	5	1				2	25	359	
Koakhally	4	2	5	75	67	20	1			5	9	124	427	
Tippurah	9	1	10	236	74	9	2	2	1		1	34	49	Returns incomplete.
Chittack	22	9	15	2	5	2	3	2	3	1		1	61	
Calcutta						2	23	33	11		1		123	
Belasore					23	2	43	33	11	6	3		123	
Pooree					23	2	23	33	11	6	3		123	Returns incomplete.
Kharabagh					23	2	23	33	11	6	3		123	
Leharungia					23	2	23	33	11	6	3		123	
Manthoom					23	2	23	33	11	6	3		123	
Singthoom					23	2	23	33	11	6	3		123	Returns incomplete.
Durrung					23	2	23	33	11	6	3		123	
Nowgong					23	2	23	33	11	6	3		123	
Seabangor					23	2	23	33	11	6	3		123	
Kanroop					23	2	23	33	11	6	3		123	Returns incomplete.
Luckinore					23	2	23	33	11	6	3		123	
Khas and Juyteah Hills					23	2	23	33	11	6	3		123	
Julpore					23	2	23	33	11	6	3		123	
Gowalparah					23	2	23	33	11	6	3		123	Returns incomplete.
Darjeeling					23	2	23	33	11	6	3		123	
Total	263	239	306	1,366	1,371	1,033	687	1,069	1,219	2,507	3,507	6,771	40,278	



## Deaths from "Fever" during the year 1871.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	Remarks.
Bhuculpore	484	253	404	359	584	370	446	117	466	1,055	1,282	662	6,858	
Bangor	158	123	196	143	120	190	187	176	177	251	274	348	2,108	
Burmah	224	284	211	212	108	65	101	81	88	163	217	226	2,093	Return incomplete.
Benghal	102	9	84	79	75	93	93	41	92	316	227	259	3,006	
Deoghar	204	220	263	250	280	246	260	318	217	216	227	207	3,006	
Fata	83	75	87	112	147	144	130	157	225	706	245	207	1,813	
Gya	421	264	221	233	823	806	340	619	651	607	607	607	6,858	
Champan	358	255	182	222	244	229	258	253	229	413	443	596	3,294	
Sarun	148	102	187	177	186	249	208	219	330	279	314	217	2,890	
Shahabad	391	231	216	147	167	304	170	219	330	279	314	217	3,142	Return incomplete.
Trihoor	392	246	255	296	283	370	380	468	172	648	464	637	6,256	
Rajbahye	345	437	436	554	563	494	672	485	371	648	464	637	6,256	
Bogra	347	320	326	306	198	170	290	300	397	363	337	662	8,094	
Dinapore	344	382	342	301	228	204	222	223	264	299	337	679	8,785	
Maldah	161	104	127	107	119	110	115	100	115	247	337	261	1,907	
Moorsabad	181	169	151	222	139	174	263	266	370	587	891	1,092	4,415	
Pubna	248	204	161	162	132	115	137	82	162	167	174	302	2,034	
Rangpur	300	301	253	374	306	263	167	110	107	117	160	228	2,629	
Burdwan	680	622	623	645	445	317	638	1,015	1,046	1,456	2,751	3,615	13,865	
Bancoorah	192	173	243	153	137	103	151	139	106	365	629	742	3,141	
Booghly	228	226	241	283	114	100	204	289	347	1,085	1,307	1,555	6,279	
Hodghly	240	230	241	211	250	221	351	487	741	798	840	1,103	5,862	
Serampore	240	130	237	141	150	172	224	327	401	508	936	951	4,338	
Howrah	126	66	116	85	177	85	110	124	182	187	229	210	1,548	
Midnapore	327	275	268	285	249	265	311	237	331	393	507	625	3,934	
Nuddea	337	330	294	340	221	247	263	235	288	413	603	970	4,039	
24-Pargunnah	1,126	739	774	840	873	745	763	675	682	1,143	1,951	1,073	13,104	
Dacca	169	548	489	440	475	346	624	639	665	769	834	1,229	7,750	
Bachergunge	519	280	193	227	218	136	141	131	185	231	234	364	2,354	
Furzedpore	519	280	193	227	218	136	141	131	185	231	234	364	2,354	
Myensing	184	86	87	125	138	138	110	111	117	290	313	248	1,487	
Sylhet	367	247	138	140	140	88	85	67	69	64	155	139	1,169	Return incomplete.
Gachar	21	12	17	14	140	108	170	146	141	135	155	192	2,035	
Chittagang	784	641	570	453	524	614	638	507	523	535	679	667	7,065	
Noakhally	397	416	265	200	236	234	208	235	219	269	341	485	2,414	
Tripurah	262	178	125	138	175	139	163	230	190	145	227	279	2,237	
Cuttack	470	332	329	322	271	336	336	350	365	402	565	775	4,715	
Balson	81	65	65	151	53	49	68	79	78	110	139	139	1,070	
Poore	141	94	110	104	66	58	106	107	92	91	113	134	1,218	
Hawrah	246	223	315	343	362	354	361	361	378	278	272	351	3,819	
Manchhanga	378	383	407	445	407	399	393	561	607	499	440	501	5,289	
Manchhanga	227	205	230	347	205	282	254	203	203	206	178	238	2,797	
Singhoom	163	197	154	137	147	139	148	112	104	171	174	177	1,946	
Darrang	...	...	...	...	...	...	...	...	131	131	196	168	764	Return incomplete.
Nowgong	146	59	51	44	47	94	69	76	66	64	41	36	748	
Serbaugor	78	85	100	93	83	103	63	76	156	223	189	195	1,453	
Kamarpore	79	104	...	157	255	298	298	243	331	230	260	275	2,407	
Kamarpore	18	16	24	18	39	30	47	22	37	54	23	40	308	
Kamarpore	100	67	62	60	71	60	60	30	37	52	74	84	759	
Jalpaigore	130	125	156	185	232	217	231	208	273	203	223	225	2,287	
Gowalparah	80	29	40	36	33	32	32	25	67	33	33	35	402	
Darjeeling	...	...	...	...	...	...	...	...	...	...	...	...	...	
Total	14,659	11,493	10,651	11,977	10,958	10,756	12,341	13,423	14,656	18,200	23,270	27,510	179,810	

## Deaths from "Bowel Complaints" during the year 1871.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	REMARKS.
Bhanupore	33	5	25	17	18	11	3	3	11	60	82	39	237	Return incomplete.
Rongpur	16	7	16	17	20	28	19	30	24	29	21	41	259	
Purneah	9	7	7	27	14	22	15	11	14	11	2	17	116	
Rajmahal	...	...	...	6	8	...	...	...	1	...	...	...	11	
Deoghur	...	...	...	7	...	...	...	...	2	...	...	...	97	Return incomplete.
Fatma	...	...	...	8	...	...	...	...	3	...	...	...	680	
Gya	50	41	26	38	44	54	41	54	63	68	65	65	580	
Champurun	75	57	24	40	31	30	23	37	63	49	22	27	385	
Sarun	79	85	68	42	42	45	60	93	77	40	24	21	633	Return incomplete.
Shahabad	13	14	104	89	84	69	69	61	41	61	71	131	914	
Turkot	12	15	14	13	16	25	14	17	37	9	8	24	203	
Barh	160	117	81	78	92	96	122	94	84	...	...	...	914	
Rajshahye	...	...	...	13	13	7	11	27	39	32	24	36	230	Return incomplete.
Bograh	5	9	3	7	...	1	6	2	3	8	6	23	73	
Dinagopore	11	14	24	13	...	1	6	6	4	22	11	25	146	
Maidah	16	3	...	8	2	1	4	7	4	8	8	7	64	
Mooshelabad	23	13	14	9	11	11	8	9	15	17	37	23	186	Return incomplete.
Pubnah	...	...	...	27	...	...	4	11	8	7	6	15	119	
Rungpore	8	3	5	11	5	9	...	2	...	100	156	112	1148	
Burhwan	182	134	98	68	51	54	94	97	60	15	14	16	279	
Bancoorah	18	34	23	15	20	23	26	21	24	31	17	25	239	Return incomplete.
Beerbloon	91	14	28	20	53	27	34	36	60	41	63	53	650	
Hogghly	62	53	67	53	52	44	52	63	72	75	76	123	712	
Scrampore	50	48	39	23	30	15	24	23	55	44	26	44	369	
Hovrah	44	38	30	20	25	70	24	65	18	120	120	106	941	Return incomplete.
Midnapore	71	123	...	67	53	70	70	65	16	13	7	114	114	
Nudda	11	9	3	5	6	9	12	5	16	10	37	22	180	
Jessore	14	5	10	31	11	6	13	8	13	51	47	70	590	
21-Pergunnahs	64	55	54	49	43	36	31	47	32	14	17	42	218	Return incomplete.
Dacca	26	15	17	23	23	16	11	8	13	11	2	13	105	
Backergunge	...	...	...	10	...	...	12	7	10	3	2	12	133	
Furreedpore	...	...	...	8	...	...	4	4	6	11	19	21	65	
Mymensing	...	...	...	3	...	...	6	3	8	3	...	5	65	Return incomplete.
Sylhet	13	4	8	...	...	...	10	10	11	7	4	3	103	
Cachar	...	...	...	4	...	...	3	3	16	34	13	27	223	
Chittagong	33	20	29	23	31	37	35	21	16	...	7	9	48	
Noakhally	...	...	...	1	...	...	...	...	...	...	...	...	71	Return incomplete.
Tippurah	6	3	3	6	6	6	...	...	6	108	119	140	1342	
Cuttack	131	129	129	182	104	82	9	74	95	...	...	...	563	
Balasore	41	37	51	51	34	31	79	47	55	...	...	...	71	
Pooree	36	54	40	67	29	30	31	34	42	...	...	...	453	Return incomplete.
Hazarebagh	21	23	28	86	26	28	10	31	23	...	...	...	284	
Lohardugga	30	31	40	39	26	23	29	24	23	...	...	...	330	
Manbhacca	33	18	27	35	40	20	24	24	23	...	...	...	396	
Singhbloon	60	69	71	62	68	63	49	46	70	...	...	...	691	Return incomplete.
Darrung	...	...	...	...	...	...	...	...	45	...	...	...	236	
Nowgong	6	10	10	6	9	9	23	27	13	...	...	...	144	
Sesabagar	23	14	35	29	53	31	23	43	60	...	...	...	144	Return incomplete.
Kamroop	12	14	...	33	60	60	61	49	80	...	...	...	544	
Luckimpore	1	5	4	...	7	12	7	9	23	...	...	...	534	
Khasi & Jynteah Hills	...	...	...	...	...	...	...	...	...	...	...	...	104	
Julpigore	14	10	8	...	...	...	...	...	...	...	...	...	9	Return incomplete.
Gawalparah	14	23	23	16	45	49	50	21	32	...	...	...	361	
Darjeeling	4	4	2	6	5	14	15	21	3	...	...	...	101	
Total	1,572	1,437	1,335	1,457	1,370	1,250	1,331	1,447	1,580	1,538	1,619	1,652	17,838	

## Deaths from "Injuries" during the year 1871.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	REMARKS.
Dhauulpore	5	3	4	12	19	63	56	38	37	71	6	3	318	Returns incomplete.
Moughri	7	14	14	20	43	66	71	83	98	62	12	12	643	
Furneah	2	2	1	10	6	9	20	13	3	33	2	6	110	
Rajmahal	1	1	1	3	3	2	6	4	4	...	2	...	11	
Deoghur	2	...	...	...	...	...	...	...	...	...	...	...	46	
Gya	15	23	30	30	40	69	84	84	70	60	31	25	555	
Chumpan	21	18	31	42	40	73	54	94	64	71	30	26	684	
Sarus	6	...	6	15	13	42	44	78	35	63	11	4	384	
Shahad	16	19	12	13	13	19	21	65	31	39	14	5	385	Returns incomplete.
Tirhoot	13	24	20	24	30	60	13	102	61	...	...	21	558	
Rejshulye	16	19	27	22	40	86	43	95	127	60	13	14	618	
Kograh	5	18	1	9	19	27	47	27	27	30	8	8	293	
Dinapore	8	11	9	6	14	23	47	19	14	13	6	9	211	
Maldah	...	2	2	4	10	10	8	47	68	43	13	...	86	
Moorsabad	15	7	21	6	21	65	46	40	60	18	11	8	353	
Purna	3	3	9	15	30	23	28	49	8	18	9	9	263	
Bungpore	12	13	6	4	15	36	10	6	29	13	11	2	129	
Burduwan	3	6	5	11	16	19	24	19	8	11	1	1	178	
Bancoorah	4	3	5	4	4	4	18	20	18	5	6	...	85	
Roogly	6	3	7	11	17	35	38	34	42	16	...	...	222	
Kenapore	6	2	2	7	12	14	23	13	36	18	9	11	163	
Midnapore	19	11	11	11	17	34	36	76	86	68	21	10	227	
Nuddia	22	23	35	25	34	78	71	73	130	109	32	21	742	
Jessore	23	15	19	25	37	64	70	96	123	82	60	49	671	
24-Pergunnahs	10	8	11	20	43	68	71	43	45	26	22	13	346	
Dacca	12	17	46	30	64	84	43	62	61	56	20	29	528	Returns incomplete.
Backergunge	4	9	6	4	18	20	21	35	38	13	4	2	167	
Furcedpore	3	6	19	11	22	42	29	34	36	16	...	7	236	
Mymensing	12	4	...	21	26	31	13	...	21	25	11	7	200	
Sylhet	...	4	...	1	...	3	...	...	...	...	...	...	4	
Cachar	...	...	14	16	33	37	41	...	48	34	22	17	315	
Chittagong	6	10	10	17	13	38	30	31	37	37	12	12	954	
Noakhally	...	8	7	18	13	25	22	29	26	17	14	10	197	
Tippurah	6	6	...	...	...	...	...	...	...	...	...	...	754	
Cuttack	30	24	33	52	93	110	61	95	106	67	44	39	175	
Balasore	4	4	3	6	12	20	95	31	21	28	4	10	231	
Pooree	5	10	12	11	48	30	35	24	24	18	6	13	195	
Hazareebagh	12	10	18	12	18	10	92	28	22	10	16	12	348	
Lohardugga	14	21	17	23	34	51	41	16	42	24	14	11	109	
Manbhoom	9	4	6	3	11	10	12	16	12	10	7	10	283	Returns incomplete.
Singbhoom	7	17	20	8	25	23	26	23	28	12	20	16	33	
Darrung	...	...	...	...	...	...	...	...	...	...	...	...	38	
Nowrong	4	2	2	3	3	5	...	...	...	...	...	...	42	
Seebagar	1	...	...	...	3	4	12	1	...	...	...	...	27	
Kamroop	11	1	...	6	13	16	23	1	22	27	10	14	162	
Lackimpore	...	...	...	...	...	...	...	...	...	...	...	...	24	
Khasi and Jynteah Hills	...	...	...	...	...	...	...	...	...	...	...	...	1	
Jalpioree	1	5	2	3	...	...	...	...	...	...	...	...	64	
Gowdah	6	22	...	7	5	...	...	...	...	...	...	...	86	
Darjeeling	1	1	...	...	...	...	...	...	...	...	...	...	17	
Total	436	459	593	640	1,130	1,750	1,813	2,080	1,972	1,761	602	624	13,472	

## Deaths from "All other Causes" during the year 1871

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	Remarks.
Bhaurupore	112	54	75	61	73	62	80	80	63	131	153	125	1,039	
Monghyr	15	12	33	27	41	42	46	46	53	38	33	18	973	
Purneah	6	5	1	2	5	8	8	8	8	28	11	16	186	
Rajnabul	19	35	31	21	13	16	6	6	12	18	15	14	283	Returns incomplete.
Deoghur	37	68	64	40	67	54	50	75	90	47	70	60	457	
Patna	71	42	50	74	44	86	84	118	113	123	68	70	482	
Samarpur	389	240	272	233	193	182	188	145	172	183	98	98	877	
Saran	16	98	103	13	98	10	8	13	21	7	16	36	2,640	
Shanabad	174	108	103	100	103	240	140	127	184	...	...	...	1,232	Returns incomplete.
Tripoot	23	24	27	18	39	24	30	67	51	41	11	20	348	
Rajshahye	13	14	9	12	9	9	16	6	12	14	13	13	128	
Begrah	13	14	2	10	10	13	18	16	23	28	15	14	200	
Raidah	2	1	7	10	14	20	8	16	9	17	7	6	108	
Moorshedabad	6	13	4	9	4	17	26	68	28	23	6	12	209	
Patnah	11	4	10	9	7	26	23	31	26	16	10	16	166	
Rungpore	45	63	26	36	40	45	29	11	15	8	4	8	289	
Burdwan	48	64	44	70	40	45	57	41	55	32	47	65	618	
Rancoorah	17	18	13	17	20	16	14	8	6	4	9	...	140	
Beerbhoon	42	29	85	28	20	19	25	34	30	22	17	29	330	
Hoghtly	19	10	27	20	20	24	21	35	25	22	22	10	234	
Semapore	9	1	8	6	8	14	20	9	16	12	10	9	122	
Howrah	12	6	23	13	8	14	14	30	22	16	17	12	184	
Midnapore	44	54	...	77	77	66	73	67	70	72	78	61	780	
Kulda	60	43	29	44	36	80	40	60	27	46	33	87	624	
Jessore	51	30	20	38	83	32	62	38	92	63	70	100	629	
24-Pergunnahs	99	94	87	94	83	72	108	79	77	61	101	132	1,107	
Dacca	21	17	37	40	67	77	62	48	62	34	33	61	520	
Backergunge	32	12	22	32	35	39	37	40	33	32	27	19	390	
Furzedipore	6	6	2	10	5	15	80	31	18	11	5	17	155	
Mymensing	23	19	22	27	64	64	60	62	63	66	38	88	604	Returns incomplete.
Sylhet	82	59	...	47	48	49	68	09	72	64	64	64	646	
Cachar	5	4	2	7	1	4	2	6	4	...	54	3	63	
Chittagong	52	46	35	34	47	42	73	68	53	67	68	77	618	
Noakhally	36	19	7	11	12	11	20	24	8	11	10	10	188	
Tippurah	48	28	31	23	16	27	37	41	39	53	17	50	400	
Cuttack	322	322	268	189	251	271	263	275	263	321	351	583	3,773	
Balasore	40	17	41	15	87	44	43	68	56	36	49	87	533	
Pooree	68	77	54	72	72	71	87	73	71	73	68	87	675	
Hazarachagh	40	59	41	48	43	54	31	63	20	33	16	20	430	
Ichardigha	86	61	130	113	113	95	107	141	100	76	77	80	506	
Manbhoon	49	43	45	182	42	41	64	62	43	57	55	48	701	
Singbhoon	45	61	75	67	90	46	52	62	24	25	19	27	1,207	
Darrang	...	...	...	...	...	...	...	...	...	...	...	...	506	
Nowgoong	9	6	5	...	7	2	...	34	3	8	6	15	701	Returns incomplete.
Rebsagar	5	4	3	...	1	6	...	7	3	8	6	15	129	
Kamroop	24	14	...	28	23	46	46	40	30	54	35	36	374	
Luckimpore	...	...	2	6	6	3	...	1	2	12	...	...	40	
Khasi and Jynteah Hills	...	...	1	1	1	...	6	13	7	1	2	5	23	
Jalpigore	29	25	53	13	17	21	16	13	17	13	13	17	236	
Gowalparah	20	16	10	17	17	24	13	13	17	15	25	23	511	
Dayreelag	1	...	3	2	3	1	...	...	3	1	3	4	19	
Total	2,440	1,969	1,991	2,144	2,107	2,223	2,420	2,634	2,414	2,380	2,084	2,750	27,366	





## RESOLUTION.

### STATISTICAL DEPARTMENT.

*Calcutta, the 17th April 1873.*

A letter No. 298, dated the 21st December 1872, from the Sanitary Commissioner for Bengal, forwarding his annual report for 1871.

1. The Lieutenant-Governor remarks that as on the last occasion so this year the Sanitary Commissioner's report was not received in the Bengal Office until the very end of the year succeeding that under review, and that the whole report for 1871 was not printed and furnished to Government until the end of March 1873. So serious a delay, which would vitiate the value of almost any report, has rendered a mere compilation like the present quite unprofitable for purposes of action, and the Lieutenant-Governor must express his strong dissatisfaction at its recurrence. His Honor trusts that there will be no delay as regards the submission of the report for the past year, which should now be ready, and that it will be submitted, as has been promised, by the 15th April.

2. The Lieutenant-Governor, moreover, cannot express his full approval either of the form or method of the report as it has now been submitted. It is not sufficient to present to Government, as Dr. Jackson has done, after the manner of his predecessors, "a simple compilation of materials supplied to the Sanitary Commissioner's office by the Civil Surgeons of the province." The Lieutenant-Governor expects from the Sanitary Commissioner something very much more complete than this. The Sanitary Commissioner, without re-producing or even necessarily abstracting the local reports, except where they were of sufficient interest to bring before the special consideration of Government, should, in his general report, condense and review the sanitary condition of the country as a whole, and bring any remarkable facts in the sanitary history of the year into prominent notice. A report which was so very much out of date as that under review might also have brought down the history of a recent and terrible pestilence like the Burdwan fever to some later date than the 30th December 1871. The Sanitary Commissioner should be the adviser and counsellor of Government in all matters relating to the general public health. His report should place the Government in possession of all known facts, and of his views on points of sanitary importance. For instance, the report now due should certainly discuss the question whether the poorer people of the Burdwan fever tract are more under-fed than those in Eastern Bengal or Behar.

3. It is of special consequence that the Sanitary Commissioner should accept his full responsibility in Bengal, where the statistics of sanitary registration are still in their infancy, and are in many respects quite untrustworthy. His Honor observes, indeed, that Dr. Jackson does say that, in spite of the untrustworthiness of his figures, his report contains a very fair notice of the relative prevalence of the diseases to which the mortality of the year has been due. This may be the case; but without a fuller explanation Mr. Campbell cannot be assured that accuracy has been secured even in this respect. He would wish that the Sanitary Commissioner had gone more carefully into the question. Dr. Jackson has nowhere in his report summarized his own experiences and opinion as to the sanitary condition of Bengal, or of any part of Bengal, during the year under review.

4. Dr. Jackson has worked out thoroughly and shown once for all the extremely untrustworthy nature of the statistics with which he has been furnished, and with which we are at present obliged to deal. His Honor recognizes and concedes the exceptional difficulties which beset the Sanitary Commissioner for Bengal. His returns are incomplete from every district,

and absolutely untrustworthy, and it is only by persevering efforts that they can be improved. In 1871 the mortality in Bengal, with a population of 66 millions, is registered at 260,331, which is only a proportion of four in a thousand; in the Punjab, with a population of 17½ millions, the deaths recorded are 363,378, giving a death-rate of 21 per thousand; in the North-Western Provinces, where the population is about 30 millions, the deaths are 578,650, and the death-rate 19·5 per thousand; in England the average death-rate is 22·4 per thousand.

5. In the following table, which the Lieutenant-Governor has taken from the Sanitary Commissioner's report, the districts of Bengal are arranged in order as to efficiency in mortuary registration in 1871:—

Mortality over 10 per 1,000.			From 5 to 10 per 1,000			From 3 to 5 per 1,000.			Under 3 per 1,000.		
1	Serampore sub-division ...	14·3	5	Kamroop ...	9·8	21	Bhangulpore ...	4·9	32	Farrukhpore ...	2·8
2	Nowgong ...	11·8	6	Singbhoom ...	8·6	22	Howrah ...	4·6	33	Patna ...	2·6
3	Gawalpara ...	10·6	7	Sibsaurgur ...	8·2	23	Moorshedabad ...	4·3	34	Jalpigoree ...	2·5
4	Beebhoon ...	10·1	8	Jessore ...	7·9	24	Maldah ...	4·2	35	Pubna ...	2·5
			9	Burdwan ...	7·8	25	Manbhoon ...	3·9	36	Shahabad ...	2·4
			10	Chittagong ...	7·5	26	Poorce ...	3·6	37	Midnapore ...	2·4
			11	Hugbly ...	7·4	27	Nuddia ...	3·6	38	Backergunj ...	2·2
			12	Cuttack ...	7·3	28	Sarun ...	3·6	39	Tipperah ...	2·1
			13	Bancoorah ...	7·	29	Chunparrun ...	3·1	40	Dacca ...	2·1
			14	Rajshahye ...	6·9	30	Dinagopore ...	3·1	41	Monghyr ...	1·9
			15	Bogra ...	6·9	31	Balasore ...	3·1	42	Sylhet ...	1·8
			16	Hazareebaugh ...	6·4				43	Rungpore ...	1·7
			17	Lohardugga ...	6·1				44	Cochlar ...	1·6
			18	Duajebing ...	6·7				45	Paricah ...	1·5
			19	Neakhal ...	6·7				46	Mymensing ...	1·
			20	21-Pergunnahs ...	6·3						

Nothing could prove the worthlessness of the returns more clearly than the figures displayed in this statement. The figures for the district of Mymensing, showing a death-rate of 1 per 1,000, would be ridiculously, if they were not deplorably, wrong. Dr. Jackson also remarks that in Burdwan, where so fatal an epidemic was raging, it is probable that not more than one death in several can have been reported.

6. Dr. Jackson proceeds to show by an interesting analysis that there is a special defect in all districts in the registration of female and of infant mortality. It is in infant mortality that the greatest deficiency appears. In England the deaths of persons under five years of age form 41·1 per cent. of the total mortality; in Bengal they form only 15·8 per cent. It may be possible that infant mortality may not be so great in India as it is among the poorer classes of the great cities of Western countries; but the disproportion cannot approach to what it amounts to in these returns, and His Honor is glad to see that Dr. Jackson's attention has been specially drawn to the question. The careful system of registration which Government is now, under the sanction of the Legislature, beginning in small manageable areas will no doubt throw light upon this inquiry.

7. His Honor has already succeeded in effecting, since the close of 1871, a tentative reform in the system under which mortuary and vital statistics are acquired in these provinces. He has freely confessed that the acquisition of accurate statistics is at present impossible over the enormous areas which compose our districts, with their vast populations and uneducated agencies; and, while not relinquishing the attempt to do what he can towards a complete registration, he has resolved in the meantime to perfect the system on a smaller scale over certain experimental selected areas, both urban and rural, in every district. Arrangements have been made for the collection of sanitary statistics from these selected localities from the 1st January last; the general returns of the district being also obtained in, it is hoped, an improved state. His Honor is now awaiting a report from the Sanitary Commissioner upon the success or otherwise of their endeavours during the first quarter of the present year.

8. Very recently also the Lieutenant-Governor has accepted a proposal which he anticipates will produce the most favourable results in ensuring an improved system of general registration. He has sanctioned the recommendation which has repeatedly been urged upon Government by successive Sanitary Commissioners and by district officers for allowing a sanitary clerk to all Civil Surgeons in connection with the collection of sanitary statistics, which in these provinces, as elsewhere, is a duty imposed upon the medical officer. Mr. Campbell trusts that the Sanitary Commissioner and the medical officers will be able to make the most of the establishments which will shortly be placed at their disposal.

9. His Honor believes that all officers are now fully aware of the great importance that he attaches to the correct registration of these statistics, and he has only to acknowledge the cordial co-operation that he has already received from the Commissioners and Magistrates, and the readiness with which they have responded to his call on numerous occasions.

10. The Lieutenant-Governor directs the distribution of this report as usual.

ORDER.—Ordered that a copy of this Resolution be forwarded to the Sanitary Commissioner for information.

By order of the Lieutenant-Governor of Bengal,

H. J. S. COTTON,

*Offg. Asst. Secy. to the Govt. of Bengal.*

No. 732.

COPY forwarded to the Sanitary Commissioner for Bengal for information.

By order of the Lieutenant-Governor of Bengal,

H. J. S. COTTON,

*Offg. Asst. Secy. to the Govt. of Bengal.*

CALCUTTA,

*The 17th April 1873.*



**ELEVENTH ANNUAL REPORT**

OF THE

.

**SANITARY COMMISSIONER FOR BENGAL**

**YEAR 1878.**

---

BY

**JOHN MARTIN COATES, M.D., SURGEON-MAJOR.**

*Sanitary Commissioner for Bengal.*

---

**Calcutta:**

**PRINTED AT THE BENGAL SECRETARIAT PRESS**

**1879**



# INDEX TO CONTENTS.



## SECTIONS I AND IV.

### Meteorology of the year and Jails.

	Paras.	Pages.
Reasons why the information under the above heads have not been included in the report...	1	1

## SECTIONS II AND III.

### European and Native Army Statistics.

Reason why the above statistics have not been included in the report	...
--	-----

## SECTION V.

### Vital Statistics.

Statistics dealt with in the report	...	3	..
<b>REGISTRATION—</b>			
Value of—in 1878	...	4	2
Districts and circles that improved in—	...	5	3
Of female deaths	...	6	..
Districts and circles in which—is approaching correctness	...	7	..
Local measures specially adopted to improve—	...	8	..
Action taken in this department to improve—	...	9	4
Desirability of paying chokidars through District Superintendent of Police	...	10	5
Act IV (B.C.) of 1873—places to which—was extended	...	11	..
Question of falsified returns inquired into	...	12	..
Changes which affected circles of registration and statistics	...	13	..
<b>BIRTH STATISTICS—</b>			
Population among whom births were registered	...	14	..
Results of birth registration	...	15	6
Births according to Sex	...	16	..
"    "    to Class or Nationality	...	17	..
"    among non-Asiatics and mixed races	...	18	..
"    in Calcutta	...	35	11
<b>DEATH STATISTICS—</b>			
Population under registration	...	19	6
Number of deaths reported and the proportion to population	...	20	7
Mortality from the specific death causes	...	21	..
Urban circles that suffered most	...	22	..
Rural " " "	...	23	8
Prevalent opinions as to healthy and unhealthy localities why misleading	...	24	..
Mortality in Bengal, Behar, Orissa and Chota Nagpore	...	25	..
"    according to Season	...	26	9
General health of the province...	...	27	..
Districts that suffered most from the chief death-causes	...	28	..
Food-supply and its effect on general health	...	29	..
Mortality according to Sex	...	30	10
"    according to Age	...	31	..
"    according to Class or Nationality	...	32	11
"    among non-Asiatics and mixed races	...	33	..
"    in Cantonments	...	34	..
"    in Calcutta	...	35	..



	Paras.	Pages.
<b>PORT OF CALCUTTA—</b>		
Sickness and mortality among seamen in—	36	11
Number of seamen admitted into the different hospitals from—	37	12
Particulars relating to Cholera among seamen	38	"
"    "    to Typhoid fever "    "	39	"
"    "    to Scurvy "    "	40	"
Mortality according to locality in—	41	"
Employment of doolies for sick seamen	42	13
Deaths of seamen during voyage	43	"
Water-supply to shipping	44	"
Accommodation for crews	45	"
Provisions at sea	46	14

## SECTION VI.

### General History of the Chief Diseases.

#### CHOLERA—

Extent of prevalence and fatality of—	47	14
Seasonal incidence of—	48	"
Areas that suffered epidemically, severely and mildly from—illustrated in cholera map	49	15
Sanitary measures at fairs	50	"
Fairs at which—occurred	51	16
Causes of—	52	"
Connection between—and foul water	53	"
Medical relief to sufferers from—	54	17
History of the incidence of—in the Western districts of Bengal	56	"
"    "    in Birbhum	57	"
"    "    in the Central districts of Bengal	58	18
"    "    in Nuddea	59	"
"    "    in Dinajpore	60	"
"    "    in Rajshahi	61	"
"    "    in Darjiling	62	"
"    "    in the Eastern districts of Bengal	63	"
"    "    in Dacca	64	"
"    "    in the districts in Behar	65	19
"    "    in Monghyr	66	"
"    "    in Bhagulpore	67	"
"    "    in Purnea	68	"
"    "    in the Sonthal Pergunnahs	69	"
"    "    in the districts in Orissa	70	20
"    "    in Cuttack	71	"
"    "    in Pooree	72	21
"    "    in the districts in Chota Nagpore	73	"

#### SMALL-POX—

Extent of prevalence and fatality of—	74	"
Mortality according to season from—	75	"
Mortality among children from—	76	"
Localities in which—prevailed severely	77	"
Facts relating to prevalence of—in Scrampore, Dinajpore, Darjiling, Backergunj, Chittagong, Sonthal Pergunnahs and Manbhum	79	22
Particulars relating to inoculation	80	"
Legal enactment required to make vaccination compulsory	81	"
Interest taken in Pooree to promote vaccination	82	"
Licensed ex-inoculators	83	"
Remuneration to vaccinators by results	84	23

#### FEVERES—

Extent of prevalence and fatality of—	85	"
Mortality from—in Bengal, Behar, Orissa and Chota Nagpore	86	"
Seasonal incidence of—	87	"
Remarks on typhoid and typhus—	88	"
Causes and remedies for malarial—	89	24
Incidence of—in the Western districts of Bengal	91	"
"    in Bardwan	92	"
"    in Bankura	93	25
"    in Birbhum	94	"

**FEVERS—**

	Paras.	Page
Incidence of— in Midnapore ... ..	95	25
"    in Hooghly ... ..	96	"
"    in Serampore ... ..	97	"
"    in Howra ... ..	98	"
"    in the Central districts of Bengal ... ..	99	"
"    in the 24 Pergunnahs ... ..	100	"
"    in Nuddea ... ..	101	26
"    in Dinajpore ... ..	102	"
"    in Rajshahi ... ..	103	"
"    in Rungpore ... ..	104	"
"    in Bogra ... ..	105	27
"    in Pubna ... ..	"	"
"    in Darjiling ... ..	106	"
"    in Jalpaigori ... ..	107	"
"    in the Eastern districts of Bengal ... ..	108	"
"    in Dacca ... ..	109	"
"    in Furriddpore ... ..	110	"
"    in the districts in Behar ... ..	111	"
"    in Patna ... ..	112	"
"    in Gya ... ..	113	"
"    in Mozufferpore ... ..	114	"
"    in Chumparun ... ..	115	"
"    in Malda ... ..	116	"
"    in Purnea ... ..	117	28
"    in the districts in Orissa ... ..	118	"
"    in Cuttack ... ..	119	"
"    in Pooree ... ..	120	"
"    in Balasore ... ..	121	"
"    in the districts in Chota Nagpore ... ..	122	"
<b>BOWEL COMPLAINTS—</b>		
Prevalence and fatality of— ... ..	123	"
Causes of— ... ..	124	"
Districts and circles that suffered most from— ... ..	125	"
Seasonal incidence of— ... ..	126	29
Inclusion of sporadic cholera under the head of— ... ..	127	"
<b>INJURY—</b>		
Mortality from— ... ..	128	"
Areas in which the highest mortality from—occurred ... ..	129	30

**SECTIONS VII AND VIII.****General History of Vaccination and Sanitary Works—(Military).**

Causes of non-inclusion of information under the above heads ... ..	130 & 131	30
---	-----------	----

**SECTION IX.****Sanitary Works—(Civil).**

Proportion of municipal income expended on sanitary works ... ..	132	30
Nature of sanitary improvements in towns effected during 1878; interest taken in the subject; drawbacks ... ..	133	31
No important work done in the rural areas; difficulties attending the measure ... ..	134	"
Remarks on suggestions of Army Sanitary Commission relating to village sanitation ... ..	135	"
Question of obstructed drainage causing fever reconsidered—instructions issued on the subject ... ..	136	"
Extension of sanitary laws ... ..	137	32
Causes of unhealthiness of Dinajpore enquired into ... ..	138	33
Port of Calcutta—duties performed by Health Officer ... ..	139	"
"    sanitation of the river ... ..	140	"
"    corpses and carcases sunk ... ..	141	"
Sanitary progress made in Bardwan town ... ..	142	"
"    "    in Bankura " ... ..	143	34

							Paras.	Pages
Sanitary progress made in Bishenpore	town	...	...	...	...	...	144	34
" " in Midnapore	"	...	...	...	...	...	145	"
" " in Hooghly	"	...	...	...	...	...	146	"
" " in Serampore	"	...	...	...	...	...	147	"
" " in Howrah	"	...	...	...	...	...	148	"
" " in 24-Pergunnahs	...	...	...	...	...	...	149	"
" " in Kishnaghur	town	...	...	...	...	...	150	35
" " in Ranaghat	"	...	...	...	...	...	"	"
" " in Jessore	"	...	...	...	...	...	151	"
" " in Berhampore	"	...	...	...	...	...	152	"
" " in Murshedabad	city	...	...	...	...	...	153	36
" " in Dinajpore	town	...	...	...	...	...	154	"
" " in Baulea	"	...	...	...	...	...	155	"
" " in Rangpore	"	...	...	...	...	...	156	"
" " in Bogra	"	...	...	...	...	...	157	"
" " in Pubna	"	...	...	...	...	...	158	"
" " in Serajgunj	"	...	...	...	...	...	159	"
" " in Darjiling	"	...	...	...	...	...	160	37
" " in Kurseong	"	...	...	...	...	...	161	"
" " in Dacca	"	...	...	...	...	...	162	"
" " in Furriddpore	"	...	...	...	...	...	163	"
" " in Syedpore	"	...	...	...	...	...	164	"
" " in Barisal	"	...	...	...	...	...	165	"
" " in Mukttagachi	"	...	...	...	...	...	166	"
" " in Chittagong	"	...	...	...	...	...	167	"
" " in Patna	"	...	...	...	...	...	168	"
" " in Gya	"	...	...	...	...	...	169	38
" " in Mozufferpore	"	...	...	...	...	...	170	"
" " in Durbhunga	"	...	...	...	...	...	171	"
" " in Arrah	"	...	...	...	...	...	172	"
" " in Chupra	"	...	...	...	...	...	173	"
" " in Sewan	"	...	...	...	...	...	174	"
" " in Motihari	"	...	...	...	...	...	175	"
" " in English Bazar	"	...	...	...	...	...	176	"
" " in Monghyr	"	...	...	...	...	...	177	"
" " in Jamalpore	"	...	...	...	...	...	178	"
" " in Bhagulpore	"	...	...	...	...	...	179	"
" " in Colgong	"	...	...	...	...	...	180	"
" " in Furnea	"	...	...	...	...	...	181	"
" " in Kishengunj	"	...	...	...	...	...	182	"
" " in Khagra	"	...	...	...	...	...	"	"
" " in Deoghur	"	...	...	...	...	...	183	"
" " in Dumka station	...	...	...	...	...	...	184	39
" " in Cuttack	town	...	...	...	...	...	185	"
" " in Pooree	"	...	...	...	...	...	186	"
" " in Balasore	"	...	...	...	...	...	187	"
" " in Hazaribagh	"	...	...	...	...	...	188	"
" " in Ranchi	"	...	...	...	...	...	189	"
" " in Purulia	"	...	...	...	...	...	190	"
" " in Jhalda	"	...	...	...	...	...	191	"

## SECTION X.

## General Remarks.

Officers in charge of office during 1878	...	...	...	...	...	192	40
PERSONAL PROCEEDINGS OF SANITARY COMMISSIONER—							
Places visited and inspected	...	...	...	...	...	193	"
Delivered lectures on Hygiene	...	...	...	...	...	194	"
Appointed ex-officio Inspector of hospitals and dispensaries	...	...	...	...	...	195	"
Reported on site for civil station at Durbhunga	...	...	...	...	...	196	"
Inquired into unhealthiness of Dinajpore	...	...	...	...	...	197	41
Reported on burials in DeSouza's burial-ground in Entally	...	...	...	...	...	198	"
" on illicit prostitution and lock-hospital system	...	...	...	...	...	199	"
" on famine mortality	...	...	...	...	...	200	"
" on unhealthiness of Chitpur barracks	...	...	...	...	...	201	"
Framed rules for the medical inspection of vessels coming into port and for quarantine	...	...	...	...	...	202	"

	Pages.	Pages.
Inquired into unhealthiness of Shamnuggur ... ..	208	41
Reported on carrying of ballast in emigrant vessels ... ..	204*	42
"    on diet scale for native seamen ... ..	205	"
"    on "    for emigrants to Assam ... ..	206	"
<b>GENERAL REMARKS ON THE SANITATION OF TOWNS—</b>		
On drainage ... ..	207	"
" conservancy—public latrines ... ..	208	43
"    "    —private "    ... ..	209	44
" night-soil trenching grounds ... ..	210	"
" establishments ... ..	211	"
" disposal of the dead ... ..	212	45
" drinking water ... ..	213	"
" roads, culverts, markets, slaughter-houses, &c. ... ..	214	"
" statistics ... ..	215	"
" utilization of the services of Civil Surgeons ... ..	216	"
Conduct of office establishment ... ..	217	"

## APPENDICES.

	Pages.
Statement showing the births registered in the municipalities and towns in Bengal during 1878 ... .. Appendix I	iii
Ditto showing the deaths registered in the districts in Bengal during 1878	iv
Ditto ditto ditto in ditto during each month of 1878 ... ..	v
Ditto ditto ditto according to Age in ditto during 1878 ... ..	vi
Ditto ditto ditto according to Class ditto during 1878 ... ..	vii
Ditto ditto ditto from different causes in the districts and towns in Bengal during 1878 ... ..	viii—xiii
Ditto showing the deaths registered from cholera in the districts in Bengal during 1878 ... ..	xiv—xv
Ditto showing ditto from small-pox in ditto during 1878 ... ..	xvi—xvii
Ditto ditto ditto from fevers in ditto during 1878 ... ..	xviii—xix
Ditto ditto ditto from bowel complaints in ditto during 1878 ... ..	xx—xxi
Ditto ditto the results in those circles included in districts in which the average death-rate exceeds 25 per 1,000 of population during 1878 ... .. II	xxv—xxvi
Ditto showing the distribution of cholera in the sub-divisions of Bengal during 1878 ... .. III	xxviii—xxxi
Map illustrating the distribution of cholera in Bengal during 1878 ... ..	xxxii
Abstract of Inspection report on the Balasore municipality ... .. IV	xxxiv
Ditto ditto on Midnapore ditto ... ..	"
Ditto ditto on Burdwan ditto ... ..	"
Ditto ditto on Bankura ditto ... ..	"
Ditto ditto on Suburbs of Calcutta ... ..	xxxv
Ditto ditto on Ranchi municipality ... ..	"
Ditto ditto on Chyebassa ditto ... ..	"
Ditto ditto on Purulia ditto ... ..	"
Ditto ditto on Dinapore ditto ... ..	"
Ditto ditto on Bungalow ditto ... ..	"
Ditto ditto on Chittagong ditto ... ..	xxxvi
Ditto ditto on Cuttack ditto ... ..	"
Ditto ditto on Bogra ditto ... ..	"
Ditto ditto on Bhagulpore ditto ... ..	"
Ditto ditto on Darjiling ditto ... ..	"
Ditto ditto on Hooghly and Chinsurah municipality ... ..	"
Ditto ditto on Serampore municipality ... ..	xxxvii
Ditto ditto on Howra ditto ... ..	"
Ditto ditto on Patna ditto ... ..	"
Ditto ditto on Arrah ditto ... ..	"
Ditto ditto on Buxar ditto ... ..	"
Ditto ditto on Chupra ditto ... ..	"



**ELEVENTH ANNUAL REPORT**

**OF THE**

**SANITARY COMMISSIONER FOR BENGAL.**

**YEAR 1878.**

**SECTIONS I AND IV.**

**METEOROLOGY OF THE YEAR AND JAILS.**

1. THESE sections are omitted from the report under the orders of Government, No. 4164, dated the 16th September 1878.

**SECTIONS II AND III.**

**EUROPEAN AND NATIVE ARMY STATISTICS.**

2. The information under the above heads is not required from the Sanitary Commissioner for Bengal. It will be contained in the report of the Imperial Sanitary Commissioner.

**SECTION V.**

**VITAL STATISTICS.**

3. This section deals with the death statistics of the entire province and the birth statistics of the principal towns, the registration of births in the provincial rural circles having been deferred *sine die* under orders of Government (*vide* Resolution dated 23rd July 1878 on the Annual Report of 1877).
- Statistics dealt with in this Report.

4. The following table exhibits the general results of registration during the year 1878, contrasted with the figures of the preceding year :—

Value of registration in 1878.

	1	2	3	4	5	6
	Number of circles that registered births and deaths at the following rates per 1,000 of population—					
	50 and above.	30 to 40.	20 to 30.	15 to 20.	10 to 15.	Under 10.
	1878.	1877.	1878.	1877.	1878.	1877.
Births ... ..	6	13	12	13	19	24
Percentage on total circles ... ..	6.74	16.66	13.48	16.66	21.35	23.76
Deaths ... ..	28	37	30	65	209	217
Percentage on total circles ... ..	4.16	5.58	11.89	9.80	81.05	82.73

	7	8	9	10		11	12	13	14
	1878.	1877.	Increase.	Decrease.		1878.	1877.	Increase.	Decrease.
Number of births ... ..	45,286	52,010	.....	6,723	Number of deaths ... ..	1,084,112	1,077,601	.....	13,485
Ratio of births per 1,000 of population.	19.56	23.51	.....	3.95	Ratio of deaths per 1,000 of population.	17.73	17.96	.....	.23
Proportion per cent. of male to female births.	119	118	1	.....	Proportion per cent. of male to female deaths.	129	128	1	.....

DISTRICTS.	15	16	17	18	19	20	21	22
	RATIO OF DEATHS PER 1,000 OF POPULATION.				RATIO OF BIRTHS PER 1,000 OF POPULATION.			
	1878.	1877.	Increase.	Decrease.	1878.	1877.	Increase.	Decrease.
Pooree ... ..	20.07	22.42	6.65	.....	Not registered.	23.64	.....	.....
Cuttack ... ..	27.09	22.55	4.54	.....	28.97	37.44	.....	8.47
Balasore ... ..	26.56	19.11	7.25	.....	26.34	18.56	7.78	.....
24-Pergunnahs ... ..	25.99	23.08	.91	.....	12.14	10.30	.....	4.16
Hoochly ... ..	25.73	22.80	2.93	.....	17.11	24.21	.....	7.10
Patna ... ..	25.71	21.58	4.13	.....	33.18	37.75	.....	4.57
Murshedabad ... ..	25.11	28.61	.....	3.50	12.31	14.77	.....	2.46
Purnea ... ..	24.07	19.87	5.10	.....	20.30	20.86	.....	.06
Nudea ... ..	24.73	20.16	.....	1.44	25.06	29.14	.....	3.49
Birbhum ... ..	24.64	26.77	.....	1.13	16.14	Not registered.	.....	.....
Dinajpore ... ..	24.17	27.18	.....	3.01	3.83	8.76	.....	4.93
Lohardugga ... ..	23.83	14.09	9.15	.....	35.41	48.76	.....	8.35
Malda ... ..	23.81	34.65	.....	10.84	18.60	32.42	.....	13.92
Bankura ... ..	23.79	18.35	10.44	.....	30.71	22.84	7.87	.....
Scrampore ... ..	22.15	17.96	3.30	.....	21.40	31.50	.....	7.10
Rajshahi ... ..	21.65	27.05	.....	5.41	15.78	20.90	.....	5.02
Jessore ... ..	21.05	26.42	.....	4.77	11.28	Not registered.	.....	.....
Julpaijori ... ..	21.27	13.64	7.43	.....	12.24	Ditto.	.....	.....
Burdwan ... ..	19.41	12.40	8.95	.....	9.12	8.40	.....	72
Monshyr ... ..	18.68	17.03	1.65	.....	30.86	33.10	.....	2.24
Howrah ... ..	18.62	18.64	.....	32	14.42	13.10	1.32	.....
Bhargulpore ... ..	18.17	17.21	.96	.....	15.94	18.94	.....	3.00
Dacca ... ..	17.71	20.89	.....	3.18	16.91	22.40	.....	5.58
Hazaribagh ... ..	17.41	12.31	5.10	.....	23.43	25.74	.....	12.31
Bogra ... ..	17.40	22.73	.....	5.33	18.90	Not registered.	.....	.....
Midnapore ... ..	17.40	17.35	.05	.....	14.13	21.27	.....	7.14
Singhbhum ... ..	17.26	14.14	3.12	.....	10.15	Not registered.	.....	.....
Darjiling ... ..	16.84	11.40	5.15	.....	15.20	Ditto.	.....	.....
Gya ... ..	16.63	12.23	4.40	.....	24.80	27.54	.....	2.88
Rungpore ... ..	14.51	14.27	.24	.....	7.01	11.04	.....	3.43
Bahabad ... ..	14.38	10.81	4.07	.....	22.72	17.78	7.94	.....
Durbhunga ... ..	13.24	11.83	1.41	.....	24.15	23.47	.....	4.32
Mozzufferpore ... ..	12.98	10.53	2.45	.....	17.80	24.38	.....	6.68
Chumpanan ... ..	12.37	12.30	.07	.....	35.06	40.99	.....	5.93
Furridpore ... ..	12.31	15.76	.....	3.45	31.42	Not registered.	.....	.....
Chittagong ... ..	12.23	24.07	.....	11.79	12.18	19.37	1.51	.....
Sonthal Pergunnahs ... ..	12.23	10.07	2.16	.....	6.34	Not registered.	.....	.....
Pubna ... ..	11.55	22.88	.....	11.33	9.68	20.69	.....	11.01
Saran ... ..	11.50	8.90	2.70	.....	20.53	27.33	.....	7.41
Noakhali ... ..	10.46	36.21	.....	25.75	5.96	Not registered.	.....	.....
Tippura ... ..	10.36	11.84	.....	1.58	30.40	28.98	.....	2.58
Manbhum ... ..	9.79	9.05	.74	.....	31.00	Not registered.	.....	.....
Mymensing ... ..	9.05	13.55	.....	4.50	24.53	35.55	.....	12.04
Backergunj ... ..	8.23	15.94	.....	7.66	10.70	13.34	.....	2.64

The results of the year under notice show a decrease of 13,485 deaths, or a fractional diminution of .23 deaths per 1,000 of the population among whom

they were recorded. Incompleteness, it is true, has pervaded the registration of every year since its inauguration, and is yet the great blemish that calls for rectification, notwithstanding that the present results bear a closer approximation to the truth than those of former years, but retrogression in registration is, I hope, on the whole, a thing of the past; and although under ordinary circumstances the above decrease would point decidedly to a retrogression, an analysis of the figures of the two periods 1877 and 1878 shows that the abnormal mortality from cholera (the direct result chiefly of the cyclone of 1876) that occurred in 1877 in the districts of Noakhali, Backergunj and Chittagong, was the chief, if not the only, cause of the decrease of deaths in the year under review. The following figures will illustrate this:—

			Deaths in 1877.	Deaths in 1878.	Decrease in 1878.
Noakhali	...	...	21,858	270	21,588
Backergunj	...	...	19,177	2,610	16,567
Chittagong	...	...	8,698	143	8,555
Total	...	...	49,733	3,023	46,710

Thus in these three districts alone there was a decrease of 46,710 deaths, which were caused mainly by a calamity that rarely occurs. The above conclusion receives additional force from the facts that decrease of deaths occurred during the year 1878 *only* under the head of cholera, an increase being seen under *all* the other heads of disease; that the major portion of this decrease occurred in only the three cyclone-stricken districts; and that the entire decrease was in excess of the increase under the other heads of disease, thus—

				Decrease.	Increase.
Cholera	...	...	...	60,113	.....
Small-pox	...	...	...	.....	4,322
Fevers	...	...	...	.....	31,850
Bowel-complaints	...	...	...	.....	6,320
Injury	...	...	...	.....	2,065
Other causes	...	...	...	.....	2,071
Total	...	...	...	60,113	46,628
Decrease in the three cyclone-stricken districts	...	...	...	46,710	46,710
Difference	...	...	...	13,403	82

5. Three hundred and seventeen circles out of the 673 in the province registered deaths at the superior rates of 20 and upwards per 1,000 of population against 319 circles in 1877, and of the 44 districts, the 27 shown in column 17 of the foregoing table exhibited better results to the extent noted opposite them.

Registration of female deaths.

7. In accordance with the orders of Government on the subject, only the figures of the circles included in districts in which the average death-rate exceeds 25 per 1,000 of population are published—see Appendix II to this report. These districts are the seven noted in the margin. The circles in these districts as well as in the other districts that returned deaths at this rate, numbered in all 250 against 183 in the preceding year.

	Death-rate.
Pooree	29.07
Cuttack	27.09
Balasore	26.86
24-Pergunnahs	25.99
Hooghly	25.73
Patna	25.71
Murshedabad	25.11

8. At Bankura and Manbhum the ghatwals were induced to render assistance, and as, in Bankura, their status and duties have been defined by a decision of the High Court, the executive have obtained a more definite hold on them than formerly. In the districts noted in the margin, the attendance of the chokidars at the thanas to furnish reports was systematically arranged, and the intervals of

Local measures specially adopted to improve registration.

Balasore.	Tippera.
Sonthal Pergunnahs.	Lohardugga.
Malda.	24-Pergunnahs.



attendance made shorter. At *Balasore* the chokidars are provided with rent-free tenures for their subsistence, consequently more effectual assistance is obtained from them than in most other districts. The supervision and testing of registers periodically by the Magistrates and District Superintendents of Police were carried out with greater care and strictness in *Rungpore*, *Outtack* and *Burdwan*. But of all the schemes to improve registration, the one most worthy of notice and of general adoption is that which was inaugurated at Patna by Captain H. M. Ramsay, the District Superintendent of Police, who paid great attention to the subject, and whose services deserve acknowledgment. For the purpose of ascertaining the geographical prevalence of crime in Patna, Captain Ramsay divided the police-stations and outposts into beats and placed each in charge, as far as possible, of 20 chokidars. In order to utilize this arrangement for the purpose of improving registration, he instituted an index or table showing the names of the chokidars in each beat, the number of houses in charge of each, the number of deaths reported by him, and the percentages of deaths reported from every 100 houses. On the supposition that each house contains five persons, he calculates that the percentage of deaths in every 100 houses represents the number of deaths among 500 persons, and that this number of deaths multiplied by two, shows the ratio of deaths per 1,000 of the population. Thus, say 36 deaths are reported to have occurred in 120 houses—

Deaths per 100 houses of 500 persons.	Deaths per 1,000 of population.
$\therefore 36 \times 100 \div 120 \dots = 30 \times 2 =$	60

After inspecting a station or outpost, Captain Ramsay prepares this table, arranging in it the names of the chokidar in order of merit, that is in accordance with the number, highest to lowest, of deaths reported in proportion to the number of houses in their charge respectively, and having paraded the chokidars, he asks those who have been remiss or careless in reporting deaths, as ascertained from his table, if their own conscience does not tell them whether he is right or wrong in imputing neglect to them. This procedure has been found to have great effect on the men and has tended to make them more careful in the discharge of this portion of their duty. If other Superintendents of Police would only interest themselves in this manner, registration in Bengal would not compare so unfavourably with those of the other provinces of India. The world will have statistics, and we may as well adopt means for getting them as perfect as possible.

In several districts the schemes initiated in former years were persevered in this year with manifest benefit, and in some no special steps were taken to advance registration.

It is to be regretted that the attempt to obtain returns from the tea-planters in Darjiling, inaugurated last year, has not succeeded. I submit that it is most important to ascertain what is the amount of sickness and mortality among labourers in tea-plantations and similar institutions. Such people live under peculiar circumstances, and are almost dependent on their employers for the sanitary arrangements that are the safeguards to the preservation of health. The want of success in obtaining the returns points to the necessity of making registration in such institutions compulsory by law.

9. During tours of inspection I, as well as Drs. Lethbridge, Harvey, and Joubert, who officiated while I was absent on deputation, have invariably enquired into the state of registration and rendered advice as to the best mode of improving it suited to local requirements. Our constant endeavours have been to obtain, whenever possible, the aid of the municipal tax-collectors in taking down births and deaths during their rounds; to cause the municipalities to take the supervision of registration more into their own hands, instead of leaving it entirely to the police; to enforce the system of regular attendance of chokidars of the rural circles at the thanas at stated and short intervals, and in convenient batches; and to have a mate appointed to each batch, who is to be responsible for the shortcomings of his men, arrange for the submission of their reports, and inquire into the reasons why the births reported are fewer than the deaths, and the deaths returned are below the probable number. We have also endeavoured to introduce what is called the *hath-chitti* (hand memorandum) system, under

Action of this department to promote registration.

which the chokidar goes, when a death occurs, to one of the punchayets, or to any one who can write in his village, and gets him to enter in it only the name of the deceased and the date on which he died. On the chokidar's attendance day he carries this *hath-chitti* to the thana, where its contents are entered in the register, with the further details that are required for record, which he readily furnishes from memory. It has been found that these *hath-chittis* prevent forgetfulness, and, as they are initialled by the registrar, they serve as proofs that the chokidar did report the deaths. In some cases, by supplying town constables with numbered passes to be given to the friends of the deceased, to be delivered by them to the person in charge of the burial-ground or burning-ghât, and to be returned finally to the municipal office, the deaths reported by the police have been better checked than formerly.

10. I would again urge the desirability of the wages of the chokidars being paid into the treasury, and issued to them through the District Superintendent of Police. Were this the case, they would carry out his orders with the same willingness, with which they now carry out those of the punchayets, and much better registration would result.

11. During the year the provisions of Act IV (B.C.) of 1873, rendering the registration of births and deaths compulsory, was extended to the towns of Sherepore, Kissengunj, Bazitpore and Jamalpore in Mymensing. This brings up the number of the towns in which this Act is in operation to 96. As yet this Act has not been strictly enforced generally, and evasion of its provisions is the rule and not the exception.

12. In accordance with the orders of Government, contained in the resolution of the 23rd July last, on the annual report of this department for 1877, inquiries were made as to whether returns are falsified with a view to increase the death-rates. From seven districts no reports were received, and the replies from the rest show that no instances of falsification have been known to have occurred. Some of these reports state, moreover, that, on the contrary, several are the cases in which omissions to record deaths have occurred; that errors of diagnoses are frequent; and that in districts where the reports of the chokidars are checked by returns furnished by punchayets, village headmen, putwaries and others, the danger of detection is great. The omissions to register are far too great and general yet for falsifications to be charged against registration, or suggested as a reason for not pushing it on to something approaching truth. At Durbhunga, however, it was detected in a case of criminal prosecution that the name of a deceased person had been altered in the register, the object being to show that the death of a person supposed to have been murdered had been reported in due course.

13. As before noticed, the registration of births was abandoned in the provincial rural circles and confined to towns. These towns number 89, 25 of which are first class and 51 second class municipalities, and the remaining 13 are unions. The boundaries of some of the registering circles in the districts of Burdwan, Birbhum, and Murshedabad were revised by transfers of villages from one to the other; a fresh estimate of the population was taken in the 24-Pergunnahs; re-measurement of areas of this and the Pubna, Cuttack, and Balasore districts were made; thanas were converted to outposts, and outposts created into thanas in some districts; and death statistics of the towns noted in the margin were separately recorded. These changes affected the population and areas under registration, as compared with the preceding year, increasing the former by 5,103, and the latter by 350.78.

BRITH STATISTICS.  
Population among whom births were registered.

#### ACCORDING TO SEX.

Male	...	...	1,213,984
Female	...	...	1,100,641
Total	...	...	2,314,625

14. The number of the population among whom births were registered is shown below—

#### ACCORDING TO CLASS.

Christians	...	...	18,280
Hindus	...	...	1,625,251
Mahomedans	...	...	658,307
Budhists	...	...	932
Other classes	...	...	11,856

15. Excluding 1,785 still-born children, 45,288 births were registered in 1878, against 52,010 births in 78 towns, and among a population of 2,212,073 in the preceding year. The birth-rate contrasted with the death-rate in the same circles in which births were registered stood as follows :—

		In 1878.	In 1877.
Ratio of births per 1,000 of population	...	19.56	28.51
Do. of deaths ditto ditto	...	34.86	31.40
Excess per 1,000 of births over deaths	...	.....	...0.
Ditto ditto 'of deaths over births	...	15.30	7.95
Number of circles that registered births over deaths	...	10	32
Ditto ditto deaths over births	...	79	46

It will be observed that, although the statistics were collected from a larger area, the results of the year under review contrast very unfavourably with those of the preceding year. There was a decrease of 6,722 reports of births, or at the rate of 3.95 per 1,000 of population, and the number of circles that registered births in excess of deaths was only 10 against 32 in 1877. The figures are so manifestly incorrect, that any deductions based on them would be fallacious. The general registration of births, which has been abandoned, presented, as its first year's result, a nearly equal birth-rate, viz. 18.20 per 1,000 of population.

16. Classified according to sex, the birth-rates stood as noted in the margin.

Births according to Sex.

Number of male births	24,615
Ditto female ditto	20,669
Ratio of male births per 1,000 of population.	10.63
Ratio of female births per 1,000 of population.	8.92
Proportion per cent. of male to female births	119

The mean proportion per cent. of male to female births was 119, against 104, the English standard. Taking the towns individually, in only four this rate was reached; 18 approximated it; in five it was below it, indicating defective registration of male births; and in the rest, 62 in number, it was above it, indicating defective registration of female births.

There is an opinion now prevailing, especially among the police, that Government does not want birth registration, and the collecting agencies are therefore less active in recording these occurrences.

17. The births distributed among the classes of the population under

Births according to Class or Nationality.

	Number of births.	Ratio of births per 1,000 of population.	Ratio of deaths per 1,000 of population.	Excess per 1,000 of deaths over births.
Christians	428	23.50	31.61	8.31
Hindus	32,352	19.90	35.13	15.23
Mahomedans	12,405	18.44	33.87	15.43
Buddhists	8	8.53	53.04	44.56
Other classes	97	8.18	15.68	7.50

registration yielded the results exhibited in the margin. Eliminating from consideration the other races, the largest proportion of deaths occurred among the Christians, next among Hindus, and the least among Mahomedans. This has always been the case; but the deaths among Christians are always

more accurately registered, and those among the other classes are less so.

18. From the Ecclesiastical returns received from Government it appears

Births among non-Asiatics and mixed races.

that, during the year under notice, the number of births registered in the province among Europeans and other non-Asiatics, and among Eurasians and other mixed races, amounted to 740, and that of this number 380 were males and 360 females.

19. The subjoined table exhibits the number of the population among

DEATH STATISTICS.

Population under registration.

tion to the square mile.

	Urban.	Rural.	Total.
* Number of registering circles	420	1,205	1,724

Population according to Sex.

Males	...	1,212,503	28,655,585	29,868,088
Females	...	1,128,300	28,072,047	30,100,347
Total	...	2,370,803	57,627,632	59,998,435

<i>Population according to Class.</i>				Urban.	Rural.	Total.
Christians	...	...	...	18,294	50,877	69,171
Hindus	...	...	...	1,671,341	37,058,609	38,729,950
Mahomedans	...	...	...	668,255	18,755,552	19,423,807
Buddhists	...	...	...	934	31,480	32,414
Other classes	...	...	...	11,979	1,640,431	1,652,413
Number of square miles	...	...	...	635.42	144,329.75	144,965.17
Population per square mile	...	...	...	3,731	309	413

\* Includes 558 outposts, and 363 dispensaries, hospitals, jails and lock-ups.

20. In the next table are shown the number of deaths registered during the year, and the proportion per 1,000 of population as compared with 1877.

				NUMBER OF DEATHS.			PROPORTION PER MILE.		
				Urban.	Rural.	Total.	Urban.	Rural.	Total.
In 1878	...	...	...	83,306	980,810	1,064,116	35.13	17.01	17.73
„ 1877	...	...	...	73,147	1,004,454	1,077,601	32.49	17.39	17.96
Difference	...	...	...	10,159 (Increase.)	23,644 (Decrease.)	13,485 (Decrease.)	2.64 (Increase.)	.38 (Decrease.)	.23 (Decrease.)

showing a considerable increase of mortality in the urban, with a decrease in the rural, circles, culminating in a fractional diminution of death-rate in the entire province. The causes will be presently explained.

21. The table in the margin shows the mortality from the various death-

Mortality from the specific death-causes.

RATIO OF DEATHS PER 1,000 OF POPULATION.									
In 1878.			In 1877.			Average of 1873-77.			
Urban.	Rural.	Total.	Urban.	Rural.	Total.	Urban.	Rural.	Total.	
Cholera	3.60	1.40	1.58	4.24	2.52	2.58	3.48	1.87	1.92
Small-pox	1.08	.17	.20	.39	.12	.13	.53	.14	.15
Fever	18.02	12.14	12.38	15.87	11.89	11.85	13.66	7.38	7.68
Bowel-complaints	5.88	.91	1.08	4.67	.83	.98	3.43	.62	.71
Injury	.60	.37	.38	.49	.34	.34	.44	.43	.43
Other causes	6.44	1.61	2.08	8.81	1.86	2.03	5.07	1.18	1.30
All causes	35.13	17.01	17.73	32.49	17.39	17.96	26.63	11.83	12.11

causes in the year under notice, as compared with the preceding year and the average of the quinquennial period 1873-77. The figures indicate that, excepting cholera all the other diseases prevailed with greater severity in 1878, and that the reduction of mortality from cholera more than counterbalanced the increase from the other diseases.

This reduction, however, was largely due to the prevalence of the disease following the cyclone in Chittagong, Noakhali and Backergunj having dwindled down to its normal proportions. The usual local outbreaks of cholera, epidemic or severe in character, did, however, occur although to a lesser extent than in 1877. The increase of mortality from fever was not very great; bowel-complaints prevailed with more than usual intensity, and small-pox increased in severity, both as compared with 1877 and with the average of the five years 1873-77.

22. The towns which suffered very severely during the year were the following—

	Ratio per mille.		Ratio per mille.
Serampore	81.01	Hazaribagh	40.04
Suburbs of Calcutta	66.94	Gya	46.43
Pooree	63.67	Mokameh	46.19
English Bazar	52.64	Rancha	45.83
Jajipore	51.70	Purnea	45.58
Purulia	50.73	Jamulpore	44.58
Kendrapara	50.55	Burhea	44.40
Darjiling	49.73	Revilgunj	43.30

Highest mortality in the rural circles.

## 23. The rural circles which suffered most were—

Districts.	Circles.	Ratio per mille.
Julpaigori ... ..	Mynagori ... ..	173·47
Ditto ... ..	Boda ... ..	135·41
Murshedabad ... ..	Sujagunj ... ..	133·51
Patna ... ..	Dinapore ... ..	56·46
Lohardugga ... ..	Barressur ... ..	48·56
Manbhum ... ..	Tundi ... ..	47·16
Purnea ... ..	Motihari ... ..	45·92
Darjiling ... ..	Dumsong ... ..	43·71
Hooghly ... ..	Bansberia ... ..	43·11
Dinajpore ... ..	Kotowali ... ..	42·26
Pooree ... ..	Pooree ... ..	41·46
Purnea ... ..	Ranigunj ... ..	40·68
Singbhum ... ..	Ghatsilla ... ..	39·72

## 24. The reputation which certain districts have for good or bad health is

Prevalent opinions as to healthy and unhealthy localities why misleading.

really most misleading, and rarely, if ever, corresponds with the inferences to be drawn from the recorded mortality, although I am satisfied that the latter is the truer test, notwithstanding the imperfections of registration. Speak to a Native Subordinate Judge or Deputy Magistrate anywhere from Chumparun to Cuttack, and he will tell you he is not in good health, and never will be until he can be in the neighbourhood of Calcutta, which is worse by far in fatality to natives than the place he lives in. Again, to European officers certain stations are always favourites, no matter whose health suffers, or how great the general mortality is; while other stations are so emphatically condemned, because, perhaps, one or two chief men have had to leave them on account of sickness, that even Government is asked to remove the station to some other locality supposed to be better in every way. When I go to these stations, I find the great majority of the people are in very good health, children included, and that the outcry is anything but a correct one generally. I find that in the stations and districts which are considered the penal settlements of Bengal for English officers, the graveyards are emptier, and the Europeans healthier than in other districts enjoying a better reputation. This is not the case in all instances, but it is certainly so in a great many of them. Statistics will in time reveal the real truth as to which are the healthy and which the unhealthy localities, but for the present it is hopeless to alter the prevalent opinions. Of this I feel certain that the stations in which Europeans who live with ordinary prudence do not maintain fairly good health, are very few indeed, and are, as sanitation is progressing, becoming more and more exceptional. I find too that middle and upper class natives coop themselves up much more, are afraid of the sun and the heat, and cannot stand local climatic changes, fatigue and exposure with the same immunity as the Englishman. Many of the former, especially the younger men, thinking our general immunity from the worst forms of fever, from cholera and bowel diseases, is due to our using stimulents, take to them, and too often excessively; while the Englishman is drinking less they, sad to state, are drinking more.

## 25. The next table shows the extent to which the four great divisions of

Mortality in Bengal, Behar, Orissa, and Chota Nagpore.

the provinces—Bengal, Behar, Orissa, and Chota Nagpore—suffered from the principal death-causes and from all causes.

	In 1876.								In 1877.				
	Population.	Area in square miles.	Population per square mile.	Cholera.	Small-pox.	Fever.	Bowel complaints.	All causes.	Cholera.	Small-pox.	Fever.	Bowel complaints.	All causes.
Bengal ... ..	35,037,008	64,470·80	513	1·51	15	13·83	78	17·61	3·48	·08	13·98	·90	20·44
Behar ... ..	20,404,904	44,330	463	1·27	·80	11·27	1·03	16·53	1·23	·28	9·55	·81	14·23
Orissa ... ..	3,034,890	7,743	391	5·10	·37	10·79	3·76	27·41	6·11	·31	7·58	2·71	21·66
Chota Nagpore ... ..	8,411,173	28,612·87	119	1·08	·11	12·14	1·98	17·50	·09	·03	9·38	1·18	12·45

Showing that, as compared with 1877, there was a considerable increase of mortality from cholera in Orissa and Chota Nagpore and a decrease in Bengal and Behar; that fever and bowel-complaints proved more fatal in Behar, Orissa and Chota Nagpore and less so in Bengal; and that the death-rate from small-pox was greater in all the four divisions of the province.

Mortality according to season.

26. In seasonal fatality the months ranked as follows :-

	No. of deaths.	
	In 1878	Average of 1873-77.
December	110,881	89,916
April	105,915	61,178
January	102,640	55,426
March	97,087	52,259
November	96,192	88,978
May	85,208	56,376
June	82,548	48,862
October	80,114	63,206
August	78,486	56,405
September	77,878	56,545
February	76,501	45,288
July	70,666	51,334

It will be seen that December maintained its place as the unhealthiest month, and February and July as healthy months; but here all further resemblance ceases between the two periods under comparison.

27. Of the 44 districts, 24 were reported to have enjoyed, on the whole, better health as compared with the preceding year, although in portions of them diseases were present in severe form. Of the 673 circles in the province, in 46 against 88 cholera was present epidemically, and in 67 against 103 in very severe form; fever prevailed with marked severity in 284 against 245 circles; small-pox was severe in 30 against 22 circles; and bowel-complaints in 47 against 23 circles. Of the 192,987 villages, 9.75 per cent. against 12.11 per cent. in 1877, were affected with cholera; 63.91 per cent. against 59.10 per cent. with fever; 3.09 per cent. against 2.04 per cent., with small-pox; and 13.44 per cent., against 12.18 per cent., with bowel-complaints. It thus appears that the only disease that prevailed less severely and less extensively was cholera; but as fever, which was unusually severe in 1877, was severer this year, and as this disease as well as small-pox and bowel-complaints were spread over a larger area, the obvious inference is that the province was, on the whole, more unhealthy in 1878 than in the preceding year.

Districts that suffered most from the chief death causes.

28. The districts that suffered most from the principal diseases were—

From cholera.	From small-pox.	From fevers.	From bowel-complaints.
Pooree 9.53	Monghyr ... 67	Murshedabad 22.06	Balasore ... 5.56
Cuttack 4.06	Patna ... 61	Malda 21.87	Serampore ... 3.82
Purnea 3.85	Shahabad 52	Dinajpore 21.41	Singbhum ... 3.43
Bhagulpore 3.76	Gya 48	Purneah 20.33	Pooree ... 3.40
Hazaribagh 3.16	Balasore 45	Rajshahi 19.95	Howra ... 3.37
24-Pergunnahs 3.06			Cuttack ... 3.03
Nuddea .. 2.97			

29. The rainfall of the year was abundant and had a very favourable effect on the outturn of the staple articles of diet on which the people chiefly subsist, viz. rice, wheat and pulses. The reports show that in 26 districts the harvest was above average and abundant and in 12 fair and equal to the average; and that it was below average in Manbbum, Gya, Hazaribagh and Howra, and parts of Cuttack, Balasore, Furridpore, Mymensing, Bogra, Shahabad, Sarun and Rajshahi.

Food-supply and its effect on general health.

The failure at Rajshahi, Sarun, Shahabad, Cuttack, Balasore and Hazari-bagh was due to drought; at Furrirdpore to drought and inundations of rivers along low-lying tracts in the southern parts of the district; at Mymensing to inundation of the rivers along pergunnahs Mymensing, Susing and Nassirujial in the east and north-east; at Bogra to inundation of the Dakoba and Bengali rivers in the east of the district; and at Howra, after exportation to Madras had ceased, to low rate of exchange and cheapness of freight.

At Darjiling and Nuddea, although the outturn was good, it was in this as in former years not equal to the requirements of the people, and had to be supplemented by importation, at Darjiling, of rice from the neighbouring districts of Julpaigori and Dinajpore and of pulses from the North-Western Provinces; and at Nuddea from Burdwan, Jessore and the 24-Pergunnahs.

The prices of the food-grains were, however, very high and in many places higher than in the preceding year. This rise was caused by large exportations to Madras in the earlier months of the year and to the North-Western Provinces later on, owing to pressure at those places, the result of the prevalence of famine; and in some cases to neighbouring districts or to trade centres. In a few districts the rise was ascribed to the scarcity that prevailed in 1877, or to the agriculturists being unwilling to part with their stocks.

Cultivators and traders benefited by this advance of prices, as it meant prosperity to them.

The general health of the people does not appear to have suffered to any material extent from this dearness of food, but it proved a serious hardship to the poor, to the non-cultivating class or day-labourers and to those on limited incomes, who consequently did suffer in health.

It is stated in the reports that at *Chumparun* the people almost entirely lived on mangoes during July and August; at *Balasore* and Cuttack the poor were reduced to one meal a day, and the children were much stinted in food; at *Gya* also the poor had to subsist on insufficient rations; at *Shahabad* the people in the sub-divisions of Buxar and Shahabad suffered in health, and those otherwise unhealthy were emaciated; at *Nuddea* sickness and mortality among the poor prevailed to a large extent; at *Manbhum* the pressure, which was felt most in the west and south-west, was so great as to necessitate the opening out of relief works, chiefly embanking village roads, at the expense of the Road Cess Department, and gratuitous aid had also to be given to some 300 people for some months, for which purpose Rs. 2,000 were allowed by Government; and at *Lohardugga* the pressure stimulated emigration.

30. The male population suffered at the rate of 20 and the female at 15·47 per 1,000 of their respective numbers. The proportion of male to every 100 female deaths was 129 against 128 in the preceding year, 109 being the English standard.

31. The old method of recording mortality under groups of ages in figured columns has been reverted to, and that of exhibiting it under the ages which represent the four periods of life—infancy, childhood, maturity, and old age—has been abandoned in the new form prescribed by the Government in 1877. The subjoined table shows the relation which the mortality according to age, recorded in groups as prescribed in the modified form, bears to the total mortality at all ages.

Under 1 year	..	...	...	...	...	...	12·75
1 to 6 years	...	...	...	...	...	...	14·11
Total under 6 years							26·86
6 to 12 years	...	...	...	...	...	...	8·53
12 to 20 "	...	...	...	...	...	...	7·96
20 to 30 "	...	...	...	...	...	...	13·30
30 to 40 "	...	...	...	...	...	...	12·00
40 to 50 "	...	...	...	...	...	...	10·05
50 to 60 "	...	...	...	...	...	...	8·79
Above 60 "	...	...	...	...	...	...	12·46

**Mortality according to Class or Nationality.**  
Ratio per mille.

	1878.	Average of 1873-77.
Christians	20.87	16.34
Hindus	18.35	11.74
Mahomedans	16.41	12.88
Buddhists	23.16	22.95
Other classes	18.69	11.84

32. The mortality among the various classes of the population during the year, contrasted with the average of the preceding five years, is exhibited in the margin. The figures are too defective for any trustworthy inferences as to the relative mortality that prevails among the different classes of the population of the province.

33. During the year 883 deaths were recorded in the province as having occurred among Europeans and other non-Asiatics and among Eurasians and other mixed races. Of this number 568 were males and 315 females, and 72 died from cholera, 24 from small-pox, 154 from fevers, 104 from bowel-complaints, 33 from injury and 496 from other causes. This information was gathered from the Ecclesiastical returns received from Government.

34. The mortality among natives in the 14 cantonments in Bengal was 30.85 per 1,000 among a population averaging 38,052, against 24.45 per 1,000 among an average population of 39,712 in the preceding year. Fort William was the healthiest, showing a mortality of only 1.12 per 1,000, and Barrackpore was the unhealthiest, showing a death-rate of 48.15 per 1,000. The mortality from the principal death-causes was at the following rates:—

Cholera	1.65
Small-pox	.28
Fevers	19.86
Bowel complaints	3.20
Injury	.23
Other causes	5.59

35. In the town of Calcutta 6,925 births and 16,396 deaths were registered in 1878. These numbers represent a birth-rate of 16.12 and a death-rate of 38.18 per 1,000 among a population of 429,535, against 17.36 and 31.90 per 1,000 respectively in the preceding year. The proportions per cent. of male to female births and of male to female deaths were 109 and 137 respectively. In Dr. Payne's opinion the births recorded in Calcutta "do not represent more than two-thirds of the number that ought to appear."

The mortality from the different death-causes stood as follows:—

From cholera	...	...	...	...	...	3.13
" small-pox	...	...	...	...	...	3.48
" fevers	...	...	...	...	...	14.16
" bowel complaints	...	...	...	...	...	4.67
" injury	...	...	...	...	...	.48
" other causes	...	...	...	...	...	12.26

36. During the year 1878, 18,965 seamen visited the port in 494 vessels, of which 411 were British, 49 French, 12 American, 13 Arab, one Italian, four Turkish, three German and one Norwegian. The total number of deaths was 80, or in the proportion of 4.21 per 1,000 of the number who visited the port. The principal diseases from which the seamen suffered and the mortality from each cause, are shown below:—

	Admissions to the hospitals.	Deaths.	Ratio per cent. of deaths to number treated
Malarious fevers	1,117	3	.26
Euteric ditto	7	3	42.85
Diarrhoea	222	...	...
Dysentery	176	8	4.54
Cholera	45	29	64.44
Small-pox	1	...	...
Scurvy	12	...	...
Heat apoplexy	42	10	23.80
Other causes	1,870	27	1.61
Total	3,292	80	2.43

Compared with the figures of 1876, the only year for which complete statistics are available, the sickness was greater, but the mortality considerably lower.



37. Of the number who fell sick, 191 were admitted into the Medical College, 2,722 into the Presidency General Hospital and 299 into the Howra Hospital, and the deaths that occurred in each of these hospitals were 9, 59, and 12, respectively.

38. In 1878 only 45 cases of cholera occurred, attended with 29 deaths. In 1877, 55 suffered, and in 1876 110 were attacked, of whom 53 died. It is true that 1878 was a healthy year for Calcutta, but it is also a fact that since the appointment of the Health Officer in 1875, this disease has steadily declined in the port year by year. Ships-of-war are now reported to leave the port without having had a single case of cholera on board, while formerly every war-ship had to leave on account of the disease. The largest number of cholera cases and deaths occurred in the months of May and April, viz., 12 and 8, and 9 and 7, respectively; and it is remarkable that, while cholera was about the town in June, July, October and November, no cases occurred in the port in those months. Of the number attacked 30 were seamen, 2 sail-makers, 4 officers, 2 firemen, 2 servants, 1 was a cook, 1 a steward, 1 a stoker and 1 a carpenter. The largest number of cases occurred at the jetties and Esplanado moorings, viz., 12 in five ships in the former locality and 10 in seven ships in the latter. The men have greater opportunities of getting on shore from these moorings than from those in other parts of the river. Twenty-eight were attacked in vessels that were anchored above Fort Point and 12 in those anchored below. One case occurred in a vessel in midstream. Twenty-six of the men who had the disease had been on shore previous to being attacked.

39. Of the seven cases from enteric fever, three occurred on board the *Thessalus* at Prinsep's Ghât and one on the *County of Caithness*. The records of the other three cases, which occurred early in the year, could not be traced. The subjects of the three cases in the *Thessalus* were two apprentices and the steward. It was remarkable that none of the seamen who lived in the fore-castle in the forward part of the ship were attacked. The deck-house in which the apprentices lived was placed between fore and mainmast, and the accommodation was good. The steward lived off the saloon or after part of the ship. This vessel brought horses. It was evident that the midships and after-apartment were more exposed to foul emanations from the horse accommodation than the fore-castle, and although the ship was well washed out and disinfected with MacDougal's powder, the privies kept clean, and the pipes free and patent, Dr. French is of opinion that these cases owed their own origin to the foul emanations from the cargo. The case on the *County of Caithness*, in the person of an apprentice, could not be investigated, as the report was received after the ship had left.

40. Twelve cases of scurvy were admitted from the shipping in 1878, against 39 in 1877 and 29 in 1876. The report of one case admitted into the Howra Hospital was not sent to the Health Officer and those of two cases could not be traced in his office; but they were isolated ones. The following table furnishes particulars regarding the remaining nine cases:—

Names of vessels in which the cases occurred.	From what port.	No. of days on voyage.	No. of cases of scurvy.	Previous history.	Provisions, lime-juice, &c.	Attributed to what cause.
City of Brussels	Trinidad	136		Were in good health when they joined.	Provisions bad, lime-juice weak.	Bad provisions. No fresh or preserved vegetables, and weak lime-juice on the voyage from Trinidad.
Seville ... ..	Liverpool	136		Had scurvy nine years ago	Provisions good; had lime-juice twice a day.	
Canute ... ..	London	125		Was ill before he shipped. Attributes his attack to having been out without sufficient rest.	Lime-juice daily issued.	A slight case.
Castle Roy ... ..	Ditto	109		Was attacked a week ago. Attributes attack to want of sufficient rest, having been constantly at sea for the last two years.	Ditto. Provisions good.	Ditto.

41. The next table shows the localities in which the sickness occurred. This information is, however, incomplete, as only the Medical College could furnish it for the whole

Mortality according to locality.

year, and the Howra and Presidency General Hospitals for only the months of September to December.

Localities.				Cholera.	Dysentery.	Fevers.	Other causes.	Total.
Number from shore				4	19	3	177	203
Ditto	Calcutta	moorings	...	...	16	53*	77	146
Ditto	Esplanade	"	...	...	35	80	114	229
Ditto	Prinsep's Ghât	"	...	1	27	53†	66	147
Ditto	Hastings "	"	...	2	40	112	124	278
Ditto	Jetty	"	...	7	12	19	191	229
Ditto	Garden Reach	"	...	1	7	28	36	72
Out in midstream, or other places in the river				1	8	43	54	106
Total from ships				12	145	388	662	1,207
GRAND TOTAL				16	164	391	839	1,410

\* Includes 1 case of enteric fever.  
† Ditto 2 cases of ditto.

These figures show that the Hastings Ghât moorings was the unhealthiest, that the Esplanade and Jetty moorings were unhealthy in the next degree, and that the locality least subject to disease was the Garden Reach moorings. The causes have not yet been ascertained, except that the Hastings Ghât moorings was the most overcrowded, as the number of berths available at it were nearly always occupied throughout the year. Dr. French hazards the opinion that "no one part of the river is more unhealthy than the other;" but it is too early to arrive at any definite opinion on the subject: time and the accumulation of statistics are needed for this purpose.

42. Three hundred and thirteen seamen were carried to the hospitals in

Employment of Doolies.

doolies. Of this number 268 were conveyed from Prinsep's Ghât and the Sailors' Home to the General Hospital and the Medical College, and 45 from Telkul Ghât to the Howra Hospital. All these were urgent cases: the milder ones walk or go in gharries.

43. Forty-two casualties occurred in 33 ships while on the voyage to

Deaths during voyage.

Calcutta. Of this number 25 were cases of drowning, 5 of accidents (aloft), 5 of fever, 3 of consumption, 2 of heart disease, 1 of hæmoptysis and 1 of sunstroke.

44. The present arrangements for supplying water to the shipping in the

Water-supply.

port from the Calcutta hydrants are reported to be satisfactory and the water is liked and considered good by the shipping. One steam cargo-boat with steam-pump, two cargo-boats and three large country boats with force hand-pumps and iron tanks, and six water-boats are employed for the purpose. Two European officers accompany the boats and the entire arrangement is under the supervision of the Superintendent of the Police Reserve Force. The charge for 1,000 gallons of water put on board is Rs. 8, but Government vessels and the vessels of the British India Steam Navigation Company, which send their water-boats to the hydrants, are charged Rs. 4 per 1,000 gallons. The value of the water supplied during the year was Rs. 54,864-12-9. Nearly all the out-going vessels took a full supply of it from the Calcutta hydrants, five (Arab ships) took it from the river, five had water from other places which they supplemented with water from Calcutta, one had water from Bombay and one from the Mauritius. Arab ships declare that they obtain their water from the municipality, but there is reason to believe that they often pump it out of the river and allow it to settle before using it. Generally the water is stored in iron tanks, but three vessels stored it in wooden casks and three in iron tanks and casks. Excepting 20, all the vessels that arrived in the port were well supplied with good water from the ports they left. Of the exceptions, nine had run short of water and in 11 condensed water was in use.

45. Most of the British ships are provided with forecastles for the men.

Accommodation for crews.

In all the newly-built ships the accommodation as to space and ventilation is good. Some ships have wooden deck-houses and no forecastles. This is the best accommodation of

all. It is neater, more comfortable, better ventilated and less hot. American ships have the best accommodation; French vessels are small and have very confined and ill-ventilated accommodation; Arab ships carry a large crew, but they live everywhere in the ship; and the canal steamers have rather confined and insufficiently-ventilated accommodation. On board all ships separate accommodation in deck-houses, good as a rule, is provided for boys and petty officers.

46. The regular diet at sea is salt pork and beef with biscuit. In most ships a fresh mess is given once a week, while in some good ships oftener. Many give butter on the scale of 1lb or  $\frac{1}{2}$ lb per man, but some give more. Lime-juice is daily served out on board British ships. On American ships the men are better fed; molasses, pickles, freshly-baked bread are daily given, and vegetables are frequently served out. Lime-juice, although carried on board, is not regularly issued. On French ships, coffee, claret, or brandy are daily issued, while salt-meat is more constantly used at sea. Lime-juice is not given in these or German ships. Potatoes are now more constantly used than formerly, and some ships are able to carry them for a long period. Potatoes and preserved vegetables are the best preventives of scurvy at sea.

## SECTION VI.

### GENERAL HISTORY OF THE CHIEF DISEASES.

#### CHOLERA.

47. DURING the year under review cholera visited every district and was present during every month. Of the 673 registering circles, it prevailed epidemically in 46 against 88, was severe in 67 against 103, mildly prevalent in 518 against 410, and entirely absent from 47 against 62; and it affected 18,821 villages against 23,041. The number of deaths recorded amounted to 95,192, or in the proportion of 1·58 per 1,000 of the population under registration, against 155,305, or at 2·58 per 1,000 in 1877. Thus it appears that, making due allowance for incompleteness in registration, both the extent of prevalence of the disease and its fatality were markedly less during the year under review. This conclusion is supported generally by the reports from the medical officers. There were, however, as in former years, special localities in which the ravages of the disease were severely felt, and the districts that suffered most are noted in the margin.

Ratio per mille.		Ratio per mille.	
Pooree ...	9·83	Nuddea ...	2·97
Cuttack ...	4·06	Jessore ...	2·93
Purneah ...	3·85	Darjiling ...	2·80
Bhagulpore ...	3·76	Howra ...	2·66
Hazaribagh ...	3·16	Balasore ...	2·36
24-Pergunnahs ...	3·06	Jalpaigori ...	2·26

48. From the table in the margin, it will be seen that the marked features with regard to the monthly incidence of cholera were—great severity of prevalence in January; very considerable decline in February, the force of the preceding year's winter severity of the disease having been exhausted; great aggravation in March; continued increase in virulence up to May, culminating in severity in April; sudden decline in June, coincident with a copious rainfall; continuance of abatement, month by month, up to October, when the rainfall was heaviest and the soil well saturated; and a rise in November with a still further increase in December, when the drying-up of the soil had re-commenced. The winter severity of the disease was not so great as in some former years and commenced later, due no doubt to the prolonged continuance of the rains.

Seasonal incidence of the disease.			No. of deaths.		Rainfall.	
	No. of deaths.	Rainfall. In.				In.
January	8,840	·55	September	3,237	10·43	
February	4,724	·44	October ...	2,015	3·37	
March	12,420	·91	November	4,597	2·08	
April	21,128	2·12	December	8,620	·58	
May	12,095	6·73				
June	6,511	6·52	Total ...		60·62	
July	5,722	13·77				
August	5,293	14·07				

The year opened with a more or less severe prevalence of the disease in Bengal and Orissa. Within this area it continued to prevail with increasing virulence up to May in Bengal and up to the end of the year, with slight intermissions in February, October and November, in Orissa. In Darjiling and Julpaigori its prevalence, however, commenced and also ended later, viz. from April to September. In Bengal the intensity of the disease was subdued generally from June to September, and its winter severity was felt in October to December, in several districts in November and December only traceable to the prolonged continuance of the rains.

Behar and Chota Nagpore suffered severely only during the months of March to August, and was comparatively free from it during the rest of the year, east Behar, with the exception of Shahabad and Durbhunga, showing a marked immunity from the disease throughout the year.

49. The cholera map in Appendix III, prepared in accordance with recent instructions on the subject, shows the portions of the province that suffered epidemically and very severely. Eliminating these portions, it is seen that the following tracts enjoyed great immunity from the disease:—

The Jehanabad sub-division in Burdwan.

- „ Bankura district.
- „ Birbhum „
- „ Sudder and Gurbetta sub-divisions in Midnapore.
- „ Satkhira sub-division in 24-Pergunnahs.
- „ Sudder, Rampore Hât, and Lalbagh sub-divisions in Murshedabad.
- „ Dinajpore district.
- „ Rajshahi „
- „ Sudder sub-division in Mymensing.
- „ Chittagong district.
- „ Noakhali „
- „ Dukhin Shabazpore sub division in Backergunj.
- „ Barh and Behar sub-divisions in Patna.
- „ Aurungabad, Jehanabad and Nowada sub-divisions in Gya.
- „ Buxar and Bhubua sub-divisions in Shahabad.
- „ Mozufferpore district.
- „ Sudder and Tajpore sub-divisions in Durbhunga.
- „ Chumparun district.
- „ Jamui sub-division in Monghyr.
- „ Sudder and Banka sub-divisions in Bhagulpore.
- „ Pachamba sub-division in Hazaribagh.
- „ Lohardugga district.
- „ Singbhum „
- „ Sudder sub-division in Manbhum.

50. In very few of the very large number of fairs held in the province are sanitary precautions taken in a systematic manner against outbreaks of disease, particularly cholera, among the large numbers that attend them. Every Sanitary Commissioner during his inspection tours impresses on the local authorities the necessity of observing such precautions in large fairs and pilgrim gatherings. A list of these fairs has been obtained from each district, together with the dates on which they are held, and reminders will be sent in future to prepare and carry out arrangements properly. Very detailed instructions were formerly issued, but much is not required to be done. Roads should be run through the grounds to prevent crowding; simple costless latrine trenches, with mat surroundings in sufficient number, should be provided; mehters should be engaged to look after these trenches and to cover them up with earth after use, all defecation elsewhere being prevented; the water-supply should be sufficient, well watched and protected from pollution; and the sale of bad food prohibited. The cost of these should, I submit, be met by the zemindars on whose grounds the fairs and pilgrim marts are held. The whole arrangement should be under the surveillance of the police and an active Sub-Inspector. The police are far too little used for conservancy supervision all through Bengal. They add immensely to the efficiency, and do not add to the cost of the measure.

Sanitary measures at fairs.

Fairs at which cholera occurred.

51. During the year cholera occurred at the following fairs in rather severe form :—

Fairs.	District.	Month.	Days they lasted.	Number assembled.	Amount of cholera.
Nargalband ...	Dacca ...	April ...	One month	500,000	Severe : many cases.
Sib Chutturdossi ...	Scrampore ...	" ...	1 day	50,000	Twenty-five sporadic cases.
Singhesur ...	Bhagulpore ...	March ...	"	30,000	Severely, which spread all over district.
Sitakund ...	Chittagong ...	" ...	6 days	7,000	Nine cases.
Kuri ...	Malda ...	April ...	1 week	30,000	Several cases.
Agradip ...	Burdwan ...	March ...	3 days	5,000	Not stated.

At *Nargalband* every care with regard to sanitary arrangements was stated to have been taken, but some 4,000 people living in the neighbourhood took up their quarters at the fair a month before the commencement of the bathing festival, and prior to the arrival of the District Superintendent of Police. They utterly disregarded all sanitary precautions, and it was among them that the greatest number of cases occurred. Forty of them died, against only six of the general crowd who subsequently arrived. At the *Sib Chutturdossi* fair the attacked were said to be persons who had fasted the whole day and had afterwards taken bad food. The mohunt, under orders of the Magistrate, employed a native doctor to treat the sick. No other sanitary arrangements had been made. At the *Singhesur* fair cholera broke out, affected the villages in the neighbourhood, spread over the northern part of the district, and carried off 1,100 persons. "No other sanitary arrangements were made except keeping the place clean:" the place here meaning only the paths through the fair. It was believed that the pilgrims returning from Deoghur in the Sonthal Pergunnahs brought the disease to Singhesur. The water of the Dhoresliri, a river flowing near Singhesur, had become stagnant, owing to an embankment made across it by the proprietors of the Singhesur indigo factory, and the people attending the fair used it for drinking, cooking, and bathing purposes. The water in the wells was also bad, besides being insufficient for the people. During the last fair held in February 1879 proper sanitary arrangements were made, and the result was most satisfactory. At *Sitakund* nine cases of cholera occurred. The Deputy Magistrate was present to look after the sanitary and other arrangements, there was a native doctor to attend to the sick, and other sanitary precautions were taken. At *Kuri* sanitary arrangements to keep the place "free from nuisances" were made by the zemindars, and the civil surgeon was present with medicines. At *Agradip* no satisfactory precautions had been taken.

This is a rather meagre account of these important fairs for the year; but even with the imperfect sanitary measures taken, the results are extremely good. The annual severity and fatality of cholera at these fairs now are as nothing compared to what they were 10 to 20 years ago, when practical sanitation was thought impossible. To no other disease in Bengal has preventive measures been so directly beneficial than to this most rapidly fatal of all. It shall have more attention each year paid to it and with, I expect, similar good results.

52. With regard to the causes of cholera, those mentioned from year to year were again referred to this year by the reporters of the outbreaks. Of all these, stagnant and polluted water holds the first place, but every other insanitary state of air, soil, food, drainage, conservancy and crowding were noted in addition.

53. Much has been written and much discussion has taken place during the year regarding the connection between cholera and foul water. We have not yet discovered the poison of cholera, nor even whether there is one. To limit the cause of cholera to one factor and its entrance into the system to one mode only, would be very unwise. Short of demonstration, the objections against such inferences must be great. Notwithstanding this, I confess that every year's observation in going from district to district, in hearing the various opinions of the local officers on the subject, and in reflecting on both, my conviction has become stronger and stronger that there is a connection between impure water and cholera, and that

the one, in Bengal at least, is the chief (I would not make it absolute or exclusive) exciting cause of the other. This growing conviction is much strengthened by the effect the preventive measures adopted at fairs and pilgrimages have had on cholera—no imperfect proof, if proof it may be called, of the connection referred to. Wherever the drinking water has been most perfectly kept free from impurities, and especially fecal ones, there cholera has prevailed least. The difficulties to be met with in keeping the water-supply pure, simple as it appears, are enormous in a country where chains of pools, the remains of old dried-up river-beds, foul tanks receiving surface drainage from every ditch and drain in the neighbourhood, and streams or khals the banks of all which are the public latrines of the people, exist to an inconceivable extent; where many of the more respectable headmen will dig pits in their own houses for the reception of the family defecations, and yet object and do their best to prevent the erection of public latrines in the neighbourhood; and where the common people of all castes will preferably and unhesitatingly drink the water of tanks, pools, &c., to which they have themselves resorted to wash after defecations and to clean their bodies and clothes. We cannot change the habits of the masses at once no more than we can sanitize Bengal, even in any one particular point, in a lifetime. Still the improvements that have been effected are great, rapid and encouraging, as I shall show further on.

The discussion which has been loudest and which has had most effect on the educated classes of Bengal, is that on the subject of foul water and cholera between the Health Officer and one of the ablest of the Commissioners in the Calcutta Municipality. While the latter showed in great detail that the inductive proofs offered by the former were imperfect and that there were other opinions on the subject deserving of consideration, he ended by expressing his "entire detestation of foul tanks," and suggested to the Town Council that "as large a grant as practicable be allowed for, and that it be made a standing order on the Engineer to utilize the town sweepings in, the filling-up of foul tanks to the utmost extent possible." This condemnation of filthy tank water, coming from the metropolis and from a native gentleman whose learning, independent opinions and honesty of purpose are justly held in the highest respect, has been of great advantage to me when conversing with native Municipal Commissioners throughout the rest of Bengal. Opinions among the people are changing for the better and action is being taken with good results already, although in limited areas only.

54. Those measures which were referred to in previous reports as having been taken to arrest the progress of the disease. Medical relief to sufferers. were adopted this year also; and no instance of entire neglect of the afflicted, where attention could be paid to them, is on record.

55. It has been usual to insert in the sanitary reports lengthened details relating to cholera in each district, showing mainly its relative prevalence and fatality in one year as compared with a preceding one. I omit all this now, and insert only such cases as appear to me to contain facts that have a practical bearing on the question of cholera.

56. In the western districts of Bengal, cholera prevailed more extensively and with greater fatality than in the preceding year. The disease was present in 2,072 villages against 1,711, and the mortality amounted to 1.29 against .88 per 1,000 of population in 1877. The months of greater prevalence were January to April and November and December.

Cholera in the western districts of Bengal.

	Ratio per mille.	
	1878.	1877.
Burdwan	1.34	.72
Bankura	.68	.31
Birbhum	.64	.99
Midnapore	1.22	.58
Hooghly	1.29	1.34
Serampore	1.17	.71
Howrah	2.56	2.54

57. In *Birbhum* Dr. Roy succeeded, with a few exceptions, in tracing cholera to direct importation or communication by water, a case of which he quotes, viz. that in the village of Kuddea in one quarter several deaths occurred and soon after another quarter of the town was affected, and yet the two places were separated by an intervening tank and there was no history of direct communication. Closer enquiry elicited the fact that after death the bedding of one of the victims was washed in a shallow tank adjoining the second quarter. This tank was one of the sources of water-supply to that neighbourhood.

58. On the whole, this portion of the province suffered less from cholera than in the preceding year. The mortality stood at 1·86 against 2·42 per 1,000 of population, and the area attacked was covered by 4,659 villages against 5,885 in the preceding year. In seasonal severity of the disease the months that ranked highest were January to May, and November and December.

**Cholera in the central districts of Bengal.**

	Ratio per mille.	
	1876.	1877.
24-Pergunnahs ...	3·06	2·29
Nudda ...	2·97	4·36
Jessore ...	2·93	1·43
Murshedabad ...	·85	2·81
Dinajpore ...	·75	·79
Rajshahi ...	·51	1·85
Rungpore ...	1·65	·64
Bogra ...	1·05	2·34
Pubna ...	·89	3·15
Darjiling ...	2·80	·04
Jalpaigori ...	2·20	·09

59. *Nudda*.—In Santipore town, which is visited by large numbers of pilgrims who come to bathe in the Bhagiruthi, and traversed by numbers of other pilgrims, being the highway to Calcutta, the mortality was so high as 9·98 per 1,000 of population.

In the Meherpore sub-division the disease prevailed specially in the villages along the rivers, and was most severe in those which are most remote from the large ones and wherever there was a scarcity of water, or when the rivers fell very low and the water became brackish and stagnant. In Jibunnuggur, in the sub-division of Chuadanga, also, the use of stagnant and polluted water from hollows and cess-pools and dampness arising from obstructed drainage, caused very great suffering.

60. At *Dinajpore* the disease prevailed with great mildness in November and December, while it was very severe in the same months of the preceding year. This immunity is attributed to the heavier rainfall of this year and to the floods of the river Purnobhaba having diluted and washed away the impurities in the tanks, wells, &c., caused by sewage contaminations, surface drainage and decomposed animal and vegetable matters.

61. There was exceedingly little cholera in *Rajshahi*, and referring to this fact, Dr. Bensley remarks—"The absence of even an endemic outbreak of cholera is rather a remarkable feature, and is the more remarkable when there is great aggravation of fever, as happened here. This lends colour to the theory that after all malarial fever and cholera have no origin in common and that the diminution of the one is counterbalanced by the aggravation of the other."

62. At *Darjiling*, while the town was entirely exempt from the disease, it prevailed with much severity in the Terai and spread as far as Kursong, which also suffered much. Dr. Purves is still strongly of opinion that the presence of the disease in the hills is traceable to intercourse with people from the plains bringing the disease with them.

63. In Eastern Bengal a very great and sensible reduction of cholera

**Cholera in the eastern districts of Bengal.**

	Ratio per mille.	
	1876.	1877.
Dacca ...	1·53	4·27
Furridpore ...	1·62	2·68
Backergunj ...	1·35	9·97
Mymensing ...	1·71	3·39
Tippera ...	1·05	2·38
Chittagong ...	·13	6·33
Noakhali ...	·29	23·94

occurred this year both with regard to the extent of its prevalence and to its fatality, for we find that only 4,428 villages were attacked against 7,828 in the preceding year and that the mortality had declined from 6·63 to 1·18 per 1,000 of population. This was mainly due to the baneful and morbid effects of the cyclone of 1876, which had continued active in the early part of 1877 and was nearly

extinguished during the rains of that year, having become quite powerless this year in Chittagong, Noakhali, and Backergunj, so much so that the disease was entirely or almost absent from Hathazari, Futikcheri, Moiscal and Cox's Bazar in Chittagong and Bamni and Hatia in Noakhali, where it had prevailed very severely in 1877. The months of greatest prevalence of the disease were, as usual, January to May and October, November and December, it being an established fact that in this portion of Bengal the months of greatest immunity are the rainy months when, especially here, the inundation of the rivers are great.

64. At *Dacca*, it is stated that cholera prevailed somewhat severely and became general from the latter end of March to the end of April when streams of pilgrims flocked into the district to bathe at the sacred ghât at Nargalband, and that the heavy inundation, beginning in the end of July and continuing to the end of September, when the rivers rose higher than they had ever been known to have done before, delayed the usual autumnal outbreak, which did not commence until December, and rendered that outbreak very mild in character. At Naraingunj, where the overcrowding of the jute coolies was as great as ever and the insanitary conditions as bad as before, there was a

smart outbreak of the disease. Dr. Crombie attempted to show what effect the opening out of the water-works to the public in the town of Dacca had on cholera. The figures furnished by him proved that no perceivable effect had occurred, but, as he justly remarks, it is too early to come to any definite conclusion on the subject. It was, however, found in the jail that, so long as well water was drunk two or three cases of cholera used to occur daily, but that, on substituting the filtered water for it, the outbreaks almost immediately ceased.

65. In the districts in Behar the extent of country attacked by, and the mortality from, the disease were less, the death-rate being 1·27 against

Cholera in the districts in Behar.

		Ratio per mille.	
		1878.	1877.
EAST	Patna	·84	1·09
	Gya	·62	·88
	Shahabad	1·10	·64
	Muzafferpore	·15	1·19
	Burhanga	·85	1·06
	Sarun	·40	·80
	Chumparun	·14	3·62
WEST	Malda	·76	0·50
	Monghyr	1·34	1·29
	Bhagulpore	3·76	1·43
	Purnea	3·85	1·20
	Sonthal Pergunnahs	1·43	·27

1·33 per 1,000 of population in 1877, and the number of villages attacked 3,297 against 4,591.

But this diminution was confined to the districts in the east, as the fatality of the disease and the area of suffering were considerably greater in those in the west. Excepting Malda, where the monthly incidence of the disease

is the same as in Bengal, the months of greatest severity in this area were, as they always are, March to September.

66. At *Monghyr* cholera prevailed sporadically throughout the district. A pretty smart outbreak occurred in the town in October near the distillery in mohullas Guhiapukur and Ghosiar. It was suspected that this outbreak had some connection with a well near the distillery from which the water-supply was obtained, which had run low and become infected with choleraic discharges from persons living close by. Near this well there was also a sheet of stagnant water stinking fearfully.

67. At *Bhagulpore* the disease prevailed in severe form from March. It is said to have first appeared at the fair held in that month at Singhesur. Particulars regarding this outbreak have been furnished in paragraph 51 of this report. From this centre the disease spread to the north and then throughout the district and continued to rage severely, reaching its maximum intensity in April. After this its virulence ceased and it continued in a mild form until the end of the year with a slight rise in August. The sub-divisions of Muhdehpurah and Supul suffered the most.

68. At *Purnea* cholera was epidemic from March to May in many parts of the district, especially in thanas Ranigunj, Mutteari, Dhamdaha, Bahadurgunj, Birnuggur and Arrarea. The fatality of the disease was also very great in these circles, Mutteari returning a death-rate of 17·93 per 1,000 of population, Ranigunj of 14·77, Dhamdaha of 11·30, Arrarea of 4·19, and Bahadurgunj of 3·44. Ranigunj is a large, crowded, commercial mart and close to the great Kusi river. The soil is sandy and the water-supply notoriously bad. Dhamdaha is flat, gets extensively submerged by the Kusi, and remains so. The soil is sandy and the water also very bad. The Magistrate says that cholera appears to have its residence in what may be termed the valley of the Kusi, and seems to travel at certain favourable seasons to all parts of the district. He thinks that the river and its water have something to do with the epidemic, for in the thana of Bahadurgunj there is a river, the Kunkai, the *fac-simile* of the Kusi in its physical aspects, and cholera never leaves its banks. With reference to the general prevalence of the disease over the district, he adds that the district is generally low and interspersed with jhils, swamps, and marshes, partly formed by the silted beds of rivers, especially the old channels of the Kusi.

69. In the *Sonthal Pergunnahs* the disease was present in epidemic form for the greater part of the year and was more virulent than in the preceding year. The experience of the last four years shows that in the *Deoghur sub-division*, as a rule, it first breaks out among the pilgrims, and then spreads over the district. In 1878 it first broke out among a batch of pilgrims from Bhagulpore in February at the time of the Shibratri mela. 21 pilgrims were attacked, of whom six were found dead by the roadside, five were picked up by the police and sent to the charitable dispensary, and the rest either reached their homes or



died on the way. The disease then attacked the town of Deoghur and also spread to other villages in the interior of the sub-division. In the sub-division of *Dumka* the disease, in epidemic form, broke out in the beginning of March, in the village of Monihat, about 17 miles north-west of Dumka sudder station. It is supposed that some of the pilgrims or affected people from Bhagulpore introduced the disease, as the village is situated on the road and the outbreak occurred soon after the disease had appeared at Deoghur. The principal cause of cholera in the sudder station, the Civil Surgeon says, is due to the growing insanitary condition of the place, bad water-supply, want of conservancy arrangements, and the soil being saturated with all sorts of organic impurities, as the night-soil is not trenched and many of the houses have well-privies. Since the place became the head-quarters of the district, the population has been fast increasing and there is a great influx of people. The need therefore of converting this place into a municipality, so that the observance of sanitary arrangements may be enforced by law, is urgent. All officers are agreed that this is necessary, and in my inspection report I have strongly recommended the municipality to submit the question to Government for orders.

70. In these districts cholera prevailed very severely, assuming almost epidemic form in Pooree. Both the area of suffering and mortality were greater than in the preceding year, the number of villages attacked being 3,678 against 2,921 and the death-rate 5.10 against 4.11 per 1,000 of population. The months of severest prevalence of the disease in this area are the same as in Behar, with this difference, that there occurs a second exacerbation in November and December. Mention has often been made in the annual reports of the reasons why the extension and spread of cholera in these districts are referable to the flocking in of large bodies of pilgrims. I need not therefore go over the old ground again.

**Cholera in the districts in Orissa.**

	Ratio per mille.	
	1878.	1877.
Cuttack	4.06	2.88
Pooree	9.83	7.52
Balasore	2.39	3.02

71. The Civil Surgeon of *Cuttack* reports that cholera occurred on the pilgrim routes in thanas Cuttack, Soliporo, Kendrapara, Patamundi and Jajipore throughout the year (with a mortality ranging from 3.26 to 10.76 per 1,000 of population), while from Juggutsingapore and Tirtola thanas, which are far away from the pilgrim routes, it was absent entirely from two to three months,—viz. in February, September and October. The greatest mortality, he says, occurred in July and August with the advent of the pilgrims during the Ruth Jatra festival and again in the inclement months of November and December, and that many of the deaths occurred among the pilgrims belonging to other parts of India, but a still greater number among those belonging to this province. With reference to these observations the Magistrate remarks—“The Ruth Jatra festival occurred this year on 3rd July and since 1873 it has never been earlier than the 23rd June. Pilgrims march down through Gya, Hazaribagh, Manbhum, Bankura, Midnapore, Balasore and Cuttack to Pooree. There is therefore no reason for supposing that they would bring cholera into the district until their return after the ceremony,—i.e. in *July*. Pilgrimage cannot therefore be the cause of cholera which rises to strength in May. Again, Juggutsingapore, which lies off either line of pilgrimage route, was the thana affected most last year. This year it has been comparatively free. It is also noticeable that in this year, as in the last, there was a double wave of cholera, yet last year the heaviest mortality was in March and April, *sinking into insignificance in May, June and July* and rising again in August to culminate in September. But in 1878 the first wave did not gain its strength till May, and thereafter, lessening in June, it culminated for this year in July, falling very low in September (the highest month of the previous year), and then gaining strength again in November, it almost equalled the intensity of the ravages in July. Now, last year the Ruth Jatra was only a few days earlier than in this year. It should be observed that the year 1878 has been one of peculiar rainfall and freedom from floods. This implies, what actually occurred, a great lowering in the water-level below the soil. The wells in Cuttack were pronounced never to have been so low for years. Frequent showers occurred during April and the early part of May, after which the rain totally ceased, until the last week of June. Here, then, we find the mortality greatly increasing and not checked till the last week in June, when copious rain (seven inches) fell.”

72. At *Poorce*, the overcrowding was not great during the Juganath Ruth Jatra, as fewer pilgrims than in the previous year attended the festival, but the conservancy and water-supply were bad, although the former was well looked after in the town by the Health Officer's Department, where also some tanks and wells were kept pure and uncontaminated. Moreover, increase of cholera was coincident with the fall of the sub-soil water, while the disease abated as the level rose. Every endeavour was made to arrest the progress of the disease in the town, the prominent features among them, worthy of imitation elsewhere, being the free distribution through the police of printed instructions regarding food, drink, cleanliness, disposal of the excreta, and other precautionary measures, and the sending round of doolies with bearers to bring cholera patients to the hospital.

73. In the districts in this portion of the province also cholera prevailed more extensively and with greater fatality than in the preceding year, the area attached representing 687 villages against 105 in 1877 and the rate of mortality amounting to 1.06 against .09 per 1,000 of population. The months of greatest prevalence of the disease were the same as in Behar,—viz. March to September.

Cholera in the districts in Chota Nagpore.

		Ratio per mille.	
		1878.	1877.
Hazaribagh	...	3.16	.09
Lohardugga	...	.32	.04
Singbhum	...	.28	.08
Manbhum	...	.67	.14

### SMALL-POX.

74. Small-pox visited every district and prevailed during every month of the year. Its severity was felt to a marked degree in 30 circles against 22 in the preceding year, it was absent from 206 against 255 circles, and it appeared in 5,968 villages against 3,868. The number of deaths registered from this cause amounted to 12,410 against 8,088, and the death-rate stood at .20 per 1,000 of population against .13 per 1,000. It thus appears that the disease prevailed to a greater extent and with severer fatality than in the preceding year, verifying what was apprehended in that year.

75. In seasonal fatality April, May and March exhibited the largest number of deaths and November and October the least. The monthly incidence of the disease in the preceding five years (1873-77) presented the same specialities.

76. The returns show that 3,114 children under one year of age, and 5,243 children of ages under 12, or in the proportions, respectively, of 25.09 and 42.24 per cent. of the total casualties, died from small-pox during the year. Thus it appears that over two-fifths of the total deaths from small-pox occurred among children.

Localities in which the disease prevailed severely.

77. The following are the 30 circles, above referred to, in which the disease prevailed severely:—

		Ratio per mille.				Ratio per mille.	
Monghyr	* Jamalpore town	...	6.31	Shahabad	* Sasseram town	...	2.94
	* Burhya "	...	5.86		* Arrah "	...	2.03
	* Shaikpura "	...	3.29		* Ramghur thana	...	1.84
	* Jamalpore thana	...	2.28		* Durgawuli	...	1.26
Mymensing	* Kishnagpur town	...	5.71	24-Pergunnahs	Suburbs of Calcutta	...	2.27
	* Jamalpore "	...	2.23	Bhagulpore	Bhagulpore town	...	2.26
	* Kishnagpur thana	...	1.37	Dacca	Dacca "	...	1.69
Burdwan	Ranigunj town	...	4.49	Patna	Mokameh "	...	1.58
	Shambazar "	...	1.78		Patna "	...	1.55
	Sonamukhi "	...	1.33		Futwa thana	...	1.96
Nuddea	Santipore "	...	3.17	Serampore	Serampore town	...	1.51
	Kishnagpur thana	...	1.00	Birbhum	Soori "	...	1.33
Gya	* Gya town	...	3.02	Howra	Howra "	...	1.20
	* Daudnuggur "	...	1.78	Darjiling	Dumsong and Kalimpong thana	...	2.69
				Noakhali	* Lkhipore "	...	1.62
				Purnea	Mankole Manihari town	...	1.44

The localities distinguished by asterisks are those in which the Act prohibiting the practice of inoculation is not in force, and it will be noticed that in these areas the fatality of small-pox was very great.

Facts relating to the prevalence of the disease in certain localities.

78. The following is a brief sketch of some noteworthy facts relating to the prevalence of the disease in certain localities.

79. At the *Serampore* municipality small-pox was confined to unprotected people, chiefly Brahmins, who are greatly prejudiced against vaccination. At *Dinajpore* also none of the attacked were protected. In the Birganj thana the disease has prevailed consecutively for three years, and shows signs of gradual increase. There is no cause for this except that great numbers of the people are unprotected. In the *Darjiling* station and its neighbourhood, it is impossible to prevent the occasional appearance of small-pox, as people from Nepal are found not unfrequently coming in covered with the disease. At *Backergunj* the disease was much diffused and prevailed epidemically. A large number of inoculators were at work all over the district and, no doubt, helped to spread the disease. Dr. Murray of *Chittagong* remarks—"Compared with other districts in Bengal, Chittagong enjoys a wonderful immunity from this disease. It seldom prevails in an epidemic form here. The practice of inoculating is nearly universal among all classes of the people and, generally, when petty outbreaks of small-pox occur, the mischief can be traced to the work of inoculators." Much of the district is sparsely inhabited. In the *Sonthal Pergunnahs* the town of Deoghur and the sub-division of Godda suffered very severely. It is said that the disease was imported by pilgrims. The Godda sub-division is the only one in the district that is very backward in adopting vaccination, and consequently outbreaks of the disease in it are frequent and severe. The people are prejudiced and will not take to vaccination. At *Manbhum* a native regiment passing through Govindpore left for treatment three children with small-pox, one of whom died. After this the disease spread.

Particulars relating to inoculation.

80. Act IV (B.C.) of 1865, prohibiting the practice of inoculation, has not yet, it appears, been introduced into the following districts:—

Backergunj.	Sarun.	} Introduced into the principal towns.
Mymensing.	Mozufferpore.	
Chittagong.	Monghyr.	
Noakhali.	Bhagulpore.	
Purnea.	Gya.	
Pooree.	Tippera.	} Introduced into five of its thanas.
Chumparun.	Pubna.	
Shahabad.	Patna.	} Introduced into four of its thanas and the principal towns.

The reports show that in most of these districts inoculation is practised very largely, and that it is also surreptitiously carried on in some other districts in which the prohibitory law is in force.

81. A strong feeling exists in some districts that the mere prohibition of inoculation is not sufficient to induce the people to take to vaccination to protect themselves from this terrible disease, but that the compulsory enforcement of vaccination by legal enactment is the *sine qua non* of success in this direction. Dr. Moorehead of Cuttack opportunely remarks—"I trust that the municipalities will soon be able to follow the good example set by Bombay, to establish compulsory vaccination. The mere interdiction of inoculation is insufficient; the more thorough measure is necessary. It was not till the population of Bombay was nearly decimated by small-pox that the Corporation stirred itself to introduce and enforce the Act."

82. It is worthy of record that the Magistrate of Pooree took great interest in the matter of vaccination. He convened a meeting of the leading inhabitants of the town and asked the Civil Surgeon to show them the superiority of vaccination to inoculation. Strong proof of its superiority was produced from the statistics of Europe, and those present were convinced and expressed their willingness to help vaccination as far as lay in their power, and some of them did so. It is hoped that further success will be attained, for the people here are religiously prejudiced against vaccination and postpone it from day to day on the mere pretences that this or that festival or ceremony is coming on. Would that there were many such Magistrates!

83. The practice of licensing inoculators to carry on vaccine operations in the district is becoming more general. This is a right move, but unless these ex-inoculators are kept under effective supervision, say of the police, and their work properly tested, the scheme will be open to some abuse, for these men are often unwilling to show their work and instances are known where they have been detected practising inoculation while pretending to carry out the work they are licensed

Licensed ex-inoculators.

Interest taken in Pooree to promote vaccination.

Legal enactment required to make vaccination compulsory.

to perform. But there are also grand exceptions. Thus, at Deoghur, where Dr. Chandra taught the inoculators to vaccinate, the men come for the lymph, show their cases and furnish the returns without any payment. They are too glad to do this, merely for the lymph supply which they require fresh each year. They acknowledge that they derive a good income in presents from the families of those they vaccinate. They have been watched and have not been detected inoculating or causing small-pox.

84. A practice of paying the vaccinator a small salary and remunerating him in addition by a small fee (annas 2) for each successful operation performed by him, is in operation in some municipalities. The plan works very successfully, and I have always brought it to the notice of other municipalities for adoption. In the first place accurate returns are secured because pay cannot be got without verification. I know one district where about 6,000 persons were said to have been vaccinated and with only two unsuccessful results. When it is considered that frequent failures attend vaccination in November and that still larger failures occur at the end of the vaccination season, such figures cannot be accepted as accurate. In cases checked in the manner above mentioned, it would be seen whether they are pustular or real lymph pock, and whether therefore protective or not. When a child gets small-pox some time after vaccination, it is remarked throughout the neighbourhood, vaccination is discredited and the people naturally return to inoculation. This plan of inducing accurate returns and a protective operation will in time cause the vaccinators, for the sake of their own interest, to work entirely on their own account, as at Deoghur, and thus be the means not only of spreading vaccination but also of giving the death-blow to inoculation. Therefore our best efforts should be given to the extension of this scheme.

### FEVERS.

85. This disease prevailed, as usual, throughout the province and during every month. It manifested great virulence in 135 circles against the same number in the preceding year, less activity in 149 against 112, and normal severity in 389 against 416; it spread over 123,340 villages against 111,925 in 1877; and the number of deaths registered from it was 742,887, or in the proportion of 12.38 per 1,000 of the population of the province, against 711,037, or 11.85 per 1,000. These figures indicate that there was more fever and that it extended over a larger area in 1878 than in 1877.

86. The table in the margin indicates that, as compared with the preceding year, fever was more fatal in Behar, Orissa and Chota Nagpore and less so in Bengal, and that the greatest increase occurred in Orissa.

Mortality from fever in the four grand divisions of the province.					
Ratio per mille.			Ratio per mille.		
1878.			1877.		
Bengal ...	13.23	13.98	Orissa ...	10.79	7.65
Behar ...	11.27	9.55	Chota Nagpore ...	12.14	9.26

Seasonal incidence of the disease.					
Number of deaths.			Number of deaths.		
Rainfall.			Rainfall.		
In.			In.		
January ...	75,294	55	July ...	45,949	13.77
February ...	55,436	44	August ...	53,563	14.07
March ...	63,530	91	September ...	55,538	10.43
April ...	63,568	2.12	October ...	60,742	3.37
May ...	59,506	5.73	November ...	75,122	2.08
June ...	55,624	6.52	December ...	85,126	5.8

87. The figures in the margin afford further proof that, as regards seasonal prevalence, fever increases coincidentally with the increase of rainfall, and that it is severest after the close of the rains and in the cold season.

88. Variety in the fevers have not been noticed. That typhoids do occur we know, but they are rare and are chiefly among young persons. They are never diagnosed out of our chief hospitals. As to typhus fevers, we know of no reason why they should not occur in Bengal, and yet they have not been met with in our hospitals. In the records of the Medical College Hospital, where they would gladly be made the subject of clinical teaching and where detailed histories and accurate *post-mortem* appearances would be recorded, they have not been found. The medical officer who reported one case of true typhus three years ago was not one to be trusted and although this year one officer states that he

Remarks on typhoid and typhus fevers.

had fevers with skin discolorations, yet he has not diagnosed them as typhus. That such cases would entirely escape record in the statistics which come from our police and chokidar agencies is certain, but that if they occur they are not noticed in our great hospitals, and especially in the teaching ones where they and any contagious extension from them would most surely be noted and published, is worthy of prominent remark. There is more than a suspicion in England that our Bengal medical officers are not careful to diagnose and discover these cases. That they could occur undetected in distant native villages is very probable, but that a wave of typhus, brought in by the police or market people, should run through a jail, a hospital, a station, or even affect at all largely the working servants of indigo, tea, or silk factories, or cooly depôts, and not be discovered and clearly defined by all or any of our various Surgeons, from the eager youth freshly primed and plumed in our English hospitals to the able, careful and observing seniors among us, is simply impossible. I need not state that this important subject is not unthought of in our various visits throughout the province.

89. Dr. Harvey, in the last annual report, showed so clearly the connection

Causes and remedies for malarial fevers.

between rainfall and malarial fever that I have taken but minor notice of the fact in this report.

The great remedy for fevers is drainage, which, in a large deltaic country where the banks of the rivers are higher, as a rule, than the intervening country, is especially difficult and expensive. Many of the districts have embankments along the course of the rivers to guard against the spill during the floods which, if the river took a new course, would wash away long lines of villages, farms, and crops, and flood whole counties in making a new channel for itself. We can therefore only drain towns and small areas. This is being done very fairly, although slowly, for even these drains are expensive to construct and the municipalities are almost always short of funds. The great object is to make town drainage schemes as costless as possible, and this is always kept in view. Levels have been and are being taken in many towns and drains have and are being constructed, commencing at the highest points to be gradually extended, as money becomes available, to the lower levels. Many have constructed their drains badly on the old, deep, irregular plan, and these drains require proper levelling and greater deepening at the outlets, and are therefore too expensive and objectionable to be carried on to completion. They are, however, being systematised and converted into wide, shallow, saucer-shaped drains, and the work will progress more and more rapidly each year.

Another point that is kept in view for the prevention of fevers is the daily cleaning of the faecal impurities in the towns. These impurities have been going on for ages and the zenana system of India offers especial difficulties in the way of overcoming the evil; but these difficulties are also gradually giving way. Not only are public latrines being rapidly erected and resorted to, but private ones are being controlled by the municipalities, cleaned increasingly by public sweepers, and the faecal matters carried away and trenched. Cultivation of the night-soil grounds is also progressing and telling its tale in the using up of the organic matters in and around towns as well as throughout districts. This is proceeding very fairly and waste places, the receptacles of filth, are now being utilized in this way in many places even up to the sides of the houses.

Incidence of fever in the districts.

90. A record of the incidence of fever in the districts, summarized as briefly as possible, is subjoined.

91. In these districts

Fever in the western districts of Bengal.

Ratio per mille.

	1878.	1877.
Burdwan	15.80	9.83
Bankura	15.78	8.40
Birbhum	18.74	19.42
Midnapore	12.44	12.65
Hooghly	18.81	16.47
Serampore	14.71	14.71
Howrah	9.96	10.38

there was, on the whole, an increase both in the fatality and extension of the disease, for the mortality amounted to 14.40 against 12.21 per 1,000 of population and the extent of country attacked is represented by 17,461 villages against 14,273.

92. At *Burdwan* a very severe and fatal outbreak occurred in the municipalities of Cutwa, Shambazar and Dunhait. The increase of the disease, on the whole, is ascribed to want of proper surface drainage, as the country being low, swampy and covered

with rice-crops, the people obstruct the drainage artificially to retain moisture during the latter months of the year.

93. At *Bankura* the eastern portion suffered much. The parts most severely visited are low-lying, flat and swampy, and some quite close to the river *Dalkishur*. It is believed that the disease is connected with the silting-up of the river channels and with the obstruction to the outfall of drainage caused by the extension of cultivation.

94. At *Birbhum* it is noteworthy that, though the fever attacked many more people than usual, it was less than usually fatal, and that it prevailed chiefly in the country west of the railway, which is ordinarily the part of the district freest from the disease and lies outside the alluvial delta. The rains commenced late, but when they came on, an unusually large quantity fell in a very short time.

95. At *Midnapore* also a large number of the people were attacked but the mortality was less. A most marked improvement took place in the laterite country to the westward of the station, as the fever, in epidemic form, has disappeared from it. Dr. Gilligan reports that ever since 1869 and 1870, when the epidemic fever of Hooghly made its way into this district, the health of the people has been deteriorating, parts of the district have been decimated and the people who have escaped with their lives and with diseased constitutions have become victims to the milder forms of seasonal fevers which have prevailed during the past two or three years.

96. At *Hooghly* those parts of the country lying along the river Hooghly suffered most, while in many portions of the interior of the district the sickness was not excessive. This is remarkable, as the reverse was the case in former years. A form of fatal malarious fever, in which there was no perceptible enlargement of the spleen, was very common both among the poor and those in good circumstances. The cases were marked by oedema of the lower extremities, discoloration of the skin and general symptoms of anaemia.

97. At *Serampore* also the country along the banks of the river, from Ballykhal to Bhudressur, suffered more or less. Among the ill-fed up-country people working in the jute factories the fever was generally of a low, remittent type, accompanied with dysentery from the second or third day of attack: oedema of the lower extremities was seen in the second week. The causes were said to be dearth of provision necessitating reduction of food, and the insanitary conditions already existing in thickly-populated villages, being intensified by the unusually heavy rainfall of the year. It was remarked that the fever began to increase simultaneously with the advent of the monsoons and that the heavier the rainfall the greater the disease.

98. At *Houra* it was specially fatal in thanas Ampta and Dumjur. The Magistrate remarks that this fact, if established, is noticeable, because of late years Juggutbullupore, lying to the north-west and west of Dumjur and north of Ampta, has been most affected with fever, notably so the villages lying along the banks of the Kana Damuda and Sarasatti, and that it would therefore appear that the disease was moving on still through the district in the direction in which it originally entered it.

99. In these districts the extent of the disease was almost the same,

Fever in the central districts of Bengal.

	Ratio per mille.	
	1878.	1877.
24-Pergunnahs	17.47	17.04
Nuddea	18.21	17.90
Jessore	17.21	20.56
Murshedabad	22.06	23.47
Dinajpore	21.41	24.37
Rajahahi	19.95	23.59
Rangpore	11.28	11.96
Bogra	14.83	18.72
Pubna	9.35	17.67
Dujiling	10.81	8.82
Jalpaigori	16.87	11.20

but the mortality was much less in 1878 than in 1877, for we find that 30,813 villages against 30,881 were attacked and that the mortality amounted to 16.79 against 18.73 per 1,000 of population.

100. In the 24-Pergunnahs fever prevailed with much severity in the Baraset and Barrackpore sub-divisions and in the suburbs of Calcutta. The urban areas in the Baraset sub-division, which are never healthy, were worse this year. The severity of the disease in the Baraset town was ascribed to excessive rainfall and to the silted-up bed of the river Suti impeding the drainage. Naihatti town is situated on the eastern bank of the Hooghly, but its drainage outfall is towards the east and is, it is said, obstructed by the Eastern Bengal Railway. In the Barrackpore sub-division not a house escaped,

and it was very fatal. It was ascribed to climatic influences, bad and insufficient drainage in many places and general neglect by the people of ordinary sanitary precautions. There was a considerable decrease of malarious fever in the Barripore sub-division, which is remarkable because this place has been chronically unhealthy hitherto. The Magistrate relates that the cause of the extreme prevalence of fever throughout the tract between Calcutta and Naihatti, including Barrackpore and Dum-Dum, is blocked up drainage. By a recent examination it has been found that the country north of Calcutta to the confines of the 24-Pergunnahs is completely water-logged. With regard to the drainage of the Barripore sub-division, he notes that Mr. Whitfield, the Executive Engineer, has prepared a thorough and effective system of drainage, in which he strongly advocates the re-opening of the principal waterways in preference to the railway proposed to be constructed between Calcutta and Diamond Harbour, and argues that a canal system would pay better, be cheaper and effect what the water-logged country urgently requires—namely drainage—while at the same time the country would obtain a thorough and cheap system of canals for conveyance of traffic. The plan and cost of this scheme have not been received in my office.

101. At *Nuddea* the disease prevailed to a greater extent than usual. This is ascribed, in addition to local insanitary conditions, to the irregular distribution of the rainfall, which caused an alternate soddening and drying of the soil. At Gaighatta, Gopalnuggur and Moheshpore the fever was due to want of drainage, polluted water-supply and inundation during the heavy rains. At Jaguli the people use the water of tanks in which jute is steeped, large portions of the country were inundated and the drainage was insufficient to carry off the flood. At Gangni the fever was most prevalent along the Bhyrub river, the banks of which are dreadfully polluted by the natives. These places are also covered with dense vegetation, much of which is decaying, and the houses overhang the refuse-pits dug during their construction.

102. At *Dinajpore* both the amount of fever and the rate of mortality had decreased. The decrease is ascribed by Dr. Mookerjee to the greater inundation of the Purnobhaba, which washed away some of the impurities. Another benefit was that, by a freer circulation, dilution and scattering of the remaining impurities over a large area, the disease spread over a larger number of villages than in the preceding year. In the town and civil station the above-mentioned benefits, combined with the improvements in its sanitary condition, effected on the suggestions of the Committee appointed to inquire into its unhealthiness, resulted in rendering its health very good. The sickness decreased to a great extent, the mortality was reduced from 30·26 to 23·00 per 1,000 of the population and, with one or two exceptions, the European residents enjoyed perfect immunity from fever. There was no necessity also to transfer any of them, as in the previous year, on account of ill-health. The improvement of the health of the town will, it is anticipated, be much greater when the drainage scheme suggested by the Committee is completed.

103. At *Rajshahi* the fever was more widespread, but the mortality was less. The areas of greatest suffering were the thanas of Baulia, Charchat, Godagari, Singra and Tanore. The disease here is said to be due to excessive dampness, the result of bad drainage. The district is flat, low-lying and intersected by large bhils, and the rain or storm-water is retained in the soil very largely.

104. At *Rungpore* the disease prevailed virulently in some places, while others enjoyed a tolerable amount of immunity; but, on the whole, a lesser area was covered by it, and the mortality had slightly declined. Last year the rains were exceptionally heavy—121·5 inches. This flushed out the bhils, and when they overflowed, a considerable amount of decomposing organic matter was carried away by the large rivers, but much also was deposited in the low grounds. Consequently, the country in the neighbourhood of the bhils showed an improvement, while the tracts of country that are low-lying were made worse than ever. Moreover, all the inhabited *churs* of the Brahmaputra and most part of the country on both banks of that river and its tributaries, the Dhurla and the Tista, were inundated twice during the rains. The effect was



that those parts which were marshy and water-logged were more afflicted by malarious fever. At the request of Dr. Harvey, Dr. Ghose made a comparative examination of the people living in villages with water-logged soil and decomposing organic matters in it, and in those situated on the immediate banks of large and flowing rivers and having a low subsoil water-level. He examined 2,000 people in each and in the same season of the year, and he found that 35 per cent. of those living in the former, and only 19·5 per cent. of those living in the latter, had enlarged spleens.

105. The experience at *Bogra* was that fever was most fatal in the cold season and least so during the rains owing to the evaporation after the overflow of *Dakoba* and its tributaries, and at *Pubna* that the fever was less because the season was mild.

106. At *Darjiling* the disease prevailed most in the Terai, Duars and lower valleys between the hills. Those coming to *Darjiling* from these places also suffered, and severely.

107. At *Julpaijori*, Mynagori suffered the most, so many as 133·81 per 1,000 of the people having died. This was attributed to insanitary habits of living and insufficient protection against cold and damp.

108. In the eastern districts of Bengal fever was somewhat less fatal, but the area covered by it was much larger: 7·67 per 1,000 of the population died against 8·63 in the preceding year, and 20,622 villages suffered against 14,742.

Fever in the eastern districts of Bengal.		
	Ratio per mille.	
	1878.	1877.
Dacca	10·71	11·40
Furridpore	9·28	11·26
Hackergunj	4·75	4·14
Mymensing	5·93	7·27
Tippura	7·31	7·78
Chittagong	9·05	11·46
Noakhali	8·45	

109. At *Dacca* the disease was most severe in the early months of the year and was said to be due to the secondary complications of the prevalent malarial poisoning which extended over the Manikgunj, Nowabgunj, Jaffergunj and Hariram-

pore thanas in the autumn of the preceding year, from causes fully explained by Dr. Crombie in the report of that year. The comparative immunity from the disease enjoyed in the winter was ascribed to the occurrence of an unprecedentedly high, late and prolonged overflow of the Brahmaputra washing away village impurities.

110. At *Furridpore* the disease presented the same features as at *Dacca*, viz. severe prevalence in the early part of the year and great reduction in the latter, and was traced to the same causes.

111. All the districts in this division of the province, except *Malda* and *Bhagulpore*, suffered more severely than in the preceding year. On the whole, the death-ratio stood at 11·27 against 9·55, but the area attacked was less—30,950 villages against 31,690.

Fever in the districts in Behar.		
	Ratio per mille.	
	1878.	1877.
Patna	15·31	11·22
Gya	12·54	9·10
Shahabad	10·89	8·43
Mozufferpore	7·37	5·07
Burhanga	8·80	7·21
Sarun	4·51	3·29
Chumparun	8·12	5·53
Malda	21·87	26·71
Monghyr	13·95	12·32
Bhagulpore	11·43	12·45
Purnea	20·33	17·69
Sonthal Pergunnahs	8·80	7·93

112. At *Patna* fever was more prevalent in the second than in the first half of the year. It generally begins to increase here in March, its maximum intensity being in September. It then begins to decrease, reaching its minimum in February.

113. At *Gya* its prevalence was ascribed to oppressive heat during the early months, followed by very heavy rain occurring later than usual.

114. At *Mozufferpore* the disease was most prevalent in autumn and in the early months of the cold season.

115. At *Chumparun* fever prevails more largely in the north-east portion of the district bordering the Nepal Terai.

116. At *Malda* it was very virulent and widely diffused from the middle of July to September. The Civil Surgeon states that "this fever has assumed a new phase in becoming particularly fatal, so much so, that a similitude between it and the Burdwan fever has been drawn. Since last year the country was little, if at all, submerged and fever, in consequence, of a most virulent type, pervaded the district, while during the present year the flooding was considerable and fever was comparatively innocuous." He believes that river overflow, when great, replenishes the tank water and washes away organic debris. The Magistrate adds—"It may be remarked that in the tracts lying near, or



abutting on, the Ganges, where those parts of the country that originally require a good continuous flushing in the rainy season and up to its close were well flushed by the rising of the Ganges in 1878, health has been remarkably good and there has been an absence of fever, while there has been an epidemic of fever in those parts where these conditions exist and remained unsatisfied at the proper time. The causes are natural and seem to be beyond control with the means available."

117. At *Purnea* it was remarked that fever prevailed with marked severity in Kaliangunj and Bahadurgunj, both of which are notably malarious localities, and that it was also very severe in Arrarea, a place that has not the evil reputation of the other two. The Magistrate noticed in his tours that the residents of the sandy plains, formed by old beds of the Kusi, suffered excessively.

118. In these districts fever prevailed more extensively and with greater fatality than in the preceding year: 11,817 villages were attacked against 8,322 and the death-rate amounted to 10·79 against 7·55.

Fever in the districts in Orissa.		Ratio per mille.	
		1878.	1877.
Cuttack ...	...	12 27	9 46
Poorcoo ...	...	7 36	5 32
Balasore ...	...	11 36	6 09

119. At *Cuttack* it was noticed that the character of the fever was intermittent, passing into remittent and assuming typhoid appearances. In the north

of the district near Bhuddruk, many villages were reported to have suffered severely and the mortality was great. Improvement in weather was followed by improvement in general health. The very high prices for food-grains obliged the poorer classes of the people, whose earnings are small and limited, to live on one meal a day. This had a marked effect on their health, as the general physical condition became lowered and the powers of resistance to disease weakened.

120. At *Poorcoo* the prevalence of fever increased after the fall of the rains, and the increase was ascribed to the exhausting heat followed by the heavy rainfall of the year, combined with the depreciated vital powers of the people, due to privation from high prices, &c.

121. At *Balasore* the disease prevailed severely in the north and again in the south, the centre being less affected. The cause of the fever, which was most violent in September and October, is traced to heavy rainfall occurring late in the year.

Fever in the districts in Chota Nagpore.		Ratio per mille.	
		1878.	1877.
Hazaribagh ...	...	11 78	10 36
Lohardugga ...	...	17 48	10 74
Singbhum ...	...	10 58	8 95
Manbhum ...	...	6 42	6 69

122. In these districts the death-rate stood at 12·14 per 1,000 of population against 9·26 in the preceding year, and the villages attacked numbered 11,677 against 12,017, showing that, although the mortality was greater, the extent of prevalence of the disease was less. Nothing special was reported relating to the history of the disease in these districts.

### BOWEL-COMPLAINTS.

123. Bowel-complaints were reported to have prevailed severely during the year in 47 circles against 23 and in 25,939 villages against 23,079, and to have been absent from 13 against the same number of circles in 1877. The deaths recorded to have occurred from them amounted to 65,282 against 58,962, giving a death-rate, with reference to population, of 1·08 against ·98 per 1,000. These figures show that these diseases were more widely diffused and had proved somewhat more fatal than in the preceding year.

124. Bowel-complaints are associated more with food, clothing, sleeping on damp ground, personal exposure, &c., than with climatic conditions. They cannot, therefore, be well controlled by sanitation. The decrease of these diseases among Europeans in easy circumstances is great and noteworthy.

125. The districts that suffered most, with the names of the thanas in them that furnished the highest death-rates, are shown in the subjoined table. It will be remarked that all these districts have suffered in the highest proportion for several years, and that the diseases, in their severe form, prevailed very extensively in Singbhum and Balasore.

Prevalence and fatality of bowel complaints in 1878.

Causes of bowel-complaints.

Districts and circles that suffered the most.

Districts.	Death-rate.	Circles.	Death-rate.	Districts.	Death-rate.	Circles.	Death-rate.
Balasore	5.56	Busta ...	8.99	Pooree ...	3.40	Pooree...	5.46
		Balasore ...	8.65	Howra ...	3.37	Bagnan ...	3.64
		Jellasore ...	5.38			Dumjur ...	3.57
		Sora ...	5.36	Cuttack ...	3.03	Ampta ...	3.45
		Bluddruk ...	5.35			Solipore ...	4.34
Serampore	3.82	Chamnuggur ...	4.34	Lohardugga ...	2.85	Silli ...	11.38
		Serampore ...	11.83			Torpa ...	5.11
		Baidabatti ...	4.24	Hooghly ...	2.72	Burweh ...	4.72
		Dumaria ...	9.23			Tamar ...	4.43
		Cheru ...	6.01	Patna ...	2.57	Bansberia ...	4.35
Singbhum	3.43	Barkilla ...	5.91			Dinapore ...	7.80
		Baharagura ...	5.81	24-Pergunnahs ...	2.16	Mokameh ...	5.11
		Kera ...	5.06			Bankipore ...	4.06
		Cherai ...	4.70	Darjiling ...	2.10	Barrackpore ...	4.06
		Anundpore ...	4.32			Dumsong and Ka- limpong ...	7.78
		Ghatsilla ...	4.23				
		Kainon ...	4.10				
		Seraikilla ...	4.02				

126. The seasonal prevalence of bowel-complaints may be ascertained from the figures given in the margin.

Seasonal incidence of bowel-complaints.

	Deaths.	Deaths.	Deaths.
January	5,929	May 5,270	September 5,602
February	4,880	June 5,216	October ... 5,294
March	6,089	July 4,660	November 5,569
April	5,891	August 5,384	December 5,498

Inclusion of sporadic cholera under the head of bowel-complaints.

A general inquiry was made, and from the reports received, it appears that in almost all the districts they are not so returned. In Furridpore it was ascertained that in three thanas five cases, in which the symptoms indicated clearly that they were cases of cholera, were returned as bowel-complaints, and Dr. Swaine is of opinion that in Lohardugga cases of sporadic cholera are always returned as bowel-complaints, and that it is only when a number of cases occur, followed by a heavy mortality, that they are returned as cholera. It is also generally believed (1) that cholera is about the only disease that the chokidars and the people can diagnose, owing to their being quite familiar with it, from the fact that its symptoms are well pronounced and of a different character from those of other diseases, and its occurrences are very frequent, in large numbers, ending in many speedy deaths, and causing great terror; (2) that, on the contrary, some cases of acute dysentery and of bad, violent, or lingering diarrhoea, or of diarrhoea in the last stage of pulmonary consumption, are returned as cholera, particularly when cholera is prevailing; and (3) that the people, being themselves interested in the matter, owing to their being anxious to obtain medicines and medical aid when cholera is present, are careful to give correct information.

## INJURY.

128. The casualties from violence amounted during the year to 22,990, or in the proportion of .38 per 1,000 of population against 20,925, or at the rate of .34 per 1,000 in the preceding year, showing a small increase in 1878. They occurred in every area in the province, except in six towns and six rural circles, and the mortality was greatest in the months of June to October. The table in the margin shows the

	SUICIDE.			WOUNDS.		ACCIDENTS.		SNAKE-BITES AND KILLS BY WILD BEASTS.		TOTAL.	
	Deaths.			Deaths.	Ratio per cent. on total deaths from injury.	Deaths.	Ratio per cent. on total deaths from injury.	Deaths.	Ratio per cent. on total deaths from injury.	Deaths.	Ratio per 1,000 of popu-lation.
	Males.	Females.	Total.								
1878...	904	1,503	2,407	10.46	1,808	6.85	8,702	37.85	10,373	44.11	22,990
1877 ..	772	1,519	2,291	10.25	1,411	6.74	7,423	35.50	9,755	40.81	20,925
Average of 1873-1877.	760	1,291	2,051	7.94	1,368	5.30	13,527	52.41	8,848	34.30	25,794

different heads under which the deaths were reported, compared with 1877, and the average of the five preceding years 1873-77. Making due allowance for the unusual enhancement of deaths from drowning in 1876 in the cyclone-stricken districts, it is seen that the largest proportion of casualties from injury was caused during the entire

period under notice by snake-bites and wild beasts and the least from wounds, and that the largest number of suicides were, as usual, committed by women.

Areas in which the highest mortality from violence occurred.

129. The circles in which the highest mortality from injury occurred are those named below:—

Districts.	Circles.	Ratio per mille.	Districts.	Circles.	Ratio per mille.
Murshedabad	{ Sujagunj	3.53	Darjiling	{ Dumsong and Kalim-	1.19
	{ Manulla Bazar	1.02		{ pong	1.06
	{ Gulikera	3.27		{ Kurseong	1.16
	{ Koteghur	2.61		{ Achipore	1.10
	{ Bantoria	2.38		{ Nawabgunj town	1.02
	{ Bhabtoria	1.98		{ Baduria	1.01
	{ Barkela	1.52		{ Hosseinabad	1.01
Singbhum	{ Silli	1.39		{ Diamond Harbour	1.15
	{ Nagra	1.23		{ Uluberia	1.06
	{ Thoi	1.11		{ Mudehpur	1.73
	{ Assantolia	1.08		{ Barisal town	1.42
	{ Bor	1.06		{ Bankura	1.35
	{ Rajabassa	1.00		{ Chittagong	1.28
	{ Dinapore	1.71		{ Ghattal	1.22
Patna	{ Attaserai	1.20		{ Gya	1.11
	{ Barh town	1.17		{ Buxar	1.02
Nuddea	{ Sarsha	1.34		{ Balasore	
Jalpaigori	{ Mynagori	1.27			

showing that the mortality from violence preponderates in Singbhum.

## SECTIONS VII AND VIII.

### GENERAL HISTORY OF VACCINATION AND SANITARY WORKS (MILITARY).

130. THE Report regarding Vaccination will be furnished by the Surgeon-General for Bengal, to be appended to this report.

131. The particulars relating to military sanitary works are not required from the Sanitary Commissioner for Bengal.

## SECTION IX.

### SANITARY WORKS (CIVIL).

132. The subjoined table shows the income of the municipalities and towns during 1878, and the proportions of the income that were expended, respectively, on sanitary works, police, and other requirements in each district.

DISTRICTS.	Number of municipalities and towns in the districts.	Total population of the municipalities and towns	Income in 1878.			Percentage of income expended on			DISTRICTS.	Number of municipalities and towns in the districts.	Total population of the municipalities and towns.	Income in 1878.			Percentage of income expended on		
						Sanitary works.	Police.	Other require-ments.							Sanitary works.	Police.	Other require-ments.
			Rs.	A.	P.							Rs.	Rs.	Rs.			
Burdwan	13	164,787	1,02,487	2	0	27	23	49	Tippera	2	38,329	16,747	14	0	18	24	50
Bankura	3	37,649	11,054	12	6	19	40	29	Chittagong	2	25,280	51,246	1	3	8	11	35
Birbhum	1	9,091	3,227	10	3	23	47	45	Noakhali	1	10,003	5,025	2	3	16	41	43
Mudnapore	6	91,893	32,721	9	3	18	30	41	Patna	11	800,825	1,65,067	8	7	23	29	41
Hoochly	3	41,898	50,893	4	8	12	21	20	Oya	12	121,205	51,444	4	1	18	41	21
Serampore	5	50,584	60,584	13	4	13	25	44	Shahabad	13	129,172	59,198	11	8	10	20	33
Howrah	2	112,521	2,29,108	11	6	37	14	46	Mozufferpore	5	89,825	42,734	6	10	14	30	56
24-Pergunnahs	21	514,205	5,54,702	12	6	35	24	40	Durbhunga	3	67,105	29,046	9	3	17	37	51
Nuddea	9	161,527	67,861	2	11	14	30	67	Serai	3	70,801	32,134	10	11	29	37	49
Jessore	3	17,787	14,998	13	0	9	37	66	Chumpran	2	27,974	13,472	1	1	16	20	68
Murshedabad	4	90,845	85,811	11	11	29	24	29	Majda	2	70,151	6,838	0	0	19	55	45
Dumapore	1	14,606	14,870	7	4	24	16	37	Monshyr	2	74,917	52,301	12	0	21	19	41
Rangbhu	2	51,865	22,714	8	11	10	22	66	Risaulpore	2	55,332	35,620	6	3	14	28	59
Rangpore	1	14,845	21,205	11	11	33	9	20	Purnea	3	18,131	23,342	8	11	14	38	39
Bogra	2	10,101	7,772	13	9	0	36	55	Per-								
Palna	2	34,803	17,519	11	0	24	31	39	gunnals	2	8,112	9,400	0	0	58	12	29
Darjiling	1	3,157	41,720	11	1	18	9	69	Cuttack	3	72,313	39,778	5	5	17	19	45
Jalpaigori	1	7,185	2,051	8	8	47	45		Pooree	1	22,095	10,268	3	6	37	61	21
Dacca	3	91,865	1,15,212	7	1	35	18	41	Balassore	1	17,610	8,317	6	3	3	26	67
Farrulpore	4	27,688	16,990	0	1	18	24	43	Hazaribagh	2	36,847	16,037	11	0	24	31	49
Backergunj	5	37,153	14,741	1	10	14	35	40	Johardugga	4	24,571	9,489	0	0	70	39	21
Mymensing	7	67,851	26,183	11	6	18	20	58	Singbhum	1	4,828	2,132	4	5	8	56	25
									Manbhum	1	5,806	4,880	11	9	60	24	14
Total	176	2,965,110	22,03,272	3	61	26	24	42									

N.B.—The expenditure in some cases is less than the income, and in others more, being met from the balance in hand at the close of the preceding year. This accounts for the sum of the percentages being in some cases more, and in some cases less, than 100.

It will be seen from the above table that, out of an income of Rs. 22,03,273, 26 per cent. was expended on sanitary works, 24 per cent. on the police and 42 per cent. on other requirements, against 21, 27, and 37 per cent. respectively in 1877, indicating that, on the whole, greater attention was given to the improvement and maintenance of sanitation in the towns. The municipalities that spent appreciable portions of their revenue in this important direction were Lohardugga (60 per cent.), Sonthal Pergunnahs (58 per cent.), Pooree (57 per cent.), Howra (37 per cent.), Dacca (35 per cent.), 24-Pergunnahs (34 per cent.), and Rungpore (33 per cent.); but 13 municipalities against 18 in 1877 allotted the insignificant proportions of 3 to 15 per cent. for this purpose, conspicuous among them being Balasore, Bogra, Chittagong, Jessore, and Rajshahi; while Julpaigori, as in the preceding year, gave nothing.

133. Exclusive of works of a recurring nature, such as surface-cleansing, repairs and alterations of latrines, drains, wells, tanks, &c., which need not be noticed, but which were generally carried out to a greater or less extent, many local improvements were effected. They will be referred to presently, and it will be seen that the progress made affords evidence of the active interest taken in the subject by most of the municipal and district officers. Much, however, yet remains to be done before the towns can be pronounced to be fairly well sanitated, but as the importance of removing the defects is always kept in view, there is every reason to hope that they will be removed, year by year, as funds become available. One great drawback to progress, however, is that schemes proposed by municipalities for correcting defects, although attempted to be carried out at once, have to be abandoned, owing to the large outlay required for the purpose not being available. Instead of doing nothing, it would be better if such schemes were judiciously divided into parts, to be taken up and carried out one after another according to their respective urgency and as funds become available. I am always careful not to suggest measures too great for execution, or too expensive to be paid for.

134. For the sanitation of the provincial rural areas very little indeed has been done. When diseases, in severe forms, break out, the local insanitary conditions favouring the outbreaks are sometimes removed, but they are allowed to accumulate again as soon as the immediate necessity for the reforms ceases,—that is, on the disappearance of the disease. The want of a legal enactment enforcing the carrying out of sanitary works by the zemindars or owners of villages is greatly felt, as it is always a troublesome question as to where the required money is to come from, and who is to undertake the work to be carried out. Thus, village insanitation, outside municipalities, is a growing evil for which little can be done at present. There is neither money nor agency and the people, being ignorant of the value of sanitary improvements, are opposed to their introduction.

135. In revising the sanitary report of this department for 1876, the Army Sanitary Commission suggested the desirability of holding the owners of villages responsible for their sanitary condition, of issuing short explicit rules relating to sanitary precautions for the guidance of the people, and of introducing sanitary teachings into schools and colleges. There is no money to be had and the people are not prepared for the first suggestion. They do not yet know that the insanitary state of their homesteads is injurious, and they are too poor to pay for improvements. Moreover, the machinery for carrying out this all over Bengal is not obtainable. The second suggestion was given effect to so long ago as 1869 by the circulation of a set of simple rules for the conservancy of villages. They were re-issued in 1875, and may be re-circulated periodically. In order to carry out the third suggestion, the Government has offered a reward of Rs. 500 for the compilation of the best sanitary primer, to be sent in by the 1st of April of the current year, suitable for English and vernacular Indian schools; simply written, without theories, and thoroughly practical, showing the chief sanitary defects of Indian towns and villages, and the best means of remedying them.

136. The late Rajah Degambur Mitter, c.s.i., whose demise we at present mourn, again addressed Government on the subject of obstructed drainage being the cause of the epidemic

Nature of sanitary improvement of towns effected during 1878; interest taken in the subject; drawbacks.

No important work done in rural areas; difficulties attending the measure.

Remarks on suggestions by Army Sanitary Commission relating to village sanitation.

Question of obstructed drainage causing fever re-considered. Instructions on the subject issued.

fever which from time to time appears in different parts of Bengal, and Government, considering that his conclusions were sound, directed Dr. Harvey to report whether they were borne out in his examination of the districts of Dinajpore and Rungpore, which were notoriously unhealthy, and, if he agreed with the views of the Rajah, to bring the subject to the notice of district officers, and point out to them how much can be done at small cost to improve matters. Dr. Harvey reported that his investigations at Dinajpore and Rungpore led him to the conclusion that the great prevalence of fever at these places is mainly due to obstructed drainage and that the inquiries made showed that, while all parts of the Dinajpore town suffered severely, those parts of it which, in addition to having their drainage obstructed, were dirtiest, most densely-peopled and supplied with the worst water, had a mortality twice as great as the better portions. In this view of the question he issued a circular to the district officers, pointing out to them (1) that, as the relation of dampness to fever, and the possibility of eliminating the latter by getting rid of the former, are two of the best known facts in hygienic science, it was worth while to test this by removing obstructions to drainage wherever possible; (2) that, as the great annual rainfall, the general flatness of the country and the fact that rice, the staple food of the people, requires extensive natural or artificial irrigation, render any general drainage scheme practically impossible, local efforts can do much to improve local drainage and to reduce fever to a minimum; (3) that when the ordinary fever of a locality suddenly increases in severity and it is observed that houses fairly dry have become damp, as seems to have been pretty generally the case where the epidemic fever has been met with, some obstruction to the drainage is certainly pointed to, and wherever the obstruction can be traced to new roads, or fishing-reed dams, or ombankments, means should be adopted to obviate the evil by providing sufficient waterways; (4) that as small local obstructions are frequently caused by landholders interfering with the drainage of villages for fishing and agricultural reasons, it would be interesting to know in how many instances these have been followed by increased fever, and whether the fever diminishes after the obstruction is removed; and (5) that it would be well if, in talking to native gentlemen in the district, their attention was drawn to the subject, and the good that would probably result to their people, if they did their best for the improvement of village drainage, was pointed out to them.

137. Part VII of the Bengal Municipal Act V (B.C.) of 1876 and bye-laws framed under the Act, were brought into operation in several municipalities.

The Act prohibiting the practice of inoculation [IV (B.C.) of 1865] was extended to the following places :—

Birbhum	district.	Kumargunj	thana	}
Murshidabad	"	Nisbutgunj	"	
Sewan	town.	Mygunge	"	
Revilgunj		Sadullapore	"	{ In Rungpore.
Balasore		Bhowanigunj	"	
Pubna	thana	Chilmari	"	
Muthura	} In Pubna.	Uliporo	"	
Chhatmohur		Barabari	"	
Dulai		Nageshari	"	
Shazadpore				

A Bill was before the Legislative Council which has since become law as Act II (B.C.) of 1879. It provides for the extension of the provisions of the Pooree Lodging-house Act IV (B.C.) of 1871 to any town or place through which people go on pilgrimage and to the lines of roads leading thereto. Under this Act all fines and fees realized are to be expended for the sanitary improvement of the towns and places in which this Act may be in force (including Pooree). This law was indeed much required.

An Act [VI (B.C.) of 1878], empowering the Commissioners to supervise and control public and private latrines and to levy a fee for supervising the latter, was passed this year, and is applicable to all first-class municipalities. The provisions of this Act, taken in connection with the sanitary clauses of the Bengal Municipal Act, form a fairly complete hygienic code for the effectual carrying out of sanitary arrangements. This Act has been introduced into a few of such municipalities, and we have endeavoured to have it extended to all the first-class municipalities we visited.

138. Causes of unhealthiness of Dinajpore inquired into. As before observed, a Committee was appointed in the early part of the year to inquire into the causes of the unhealthiness of Dinajpore and the measures necessary for improving its sanitary condition. They reported that while the unhealthiness of the place is due, to some extent, to other defects connected with conservancy, disposal of night-soil, house well-privies, tanks, &c., the chief cause is defective drainage. They therefore submitted a comprehensive scheme for improving the drainage arrangements of the town, and steps have been taken by Government to give effect to this scheme.

139. The sanitation of the port of Calcutta was administered to by Port of Calcutta: duties performed by Health Officer. Dr. Mackenzie from 1st to 10th January, by Dr. Joubert from 11th January to 3rd May, by Dr. Wall from 4th May to 6th July, and by Dr. French from 7th July to the end of the year. They performed their duties actively and zealously, and it is very gratifying to learn from the last officer's report that the opposition which the Health Officer met with at the beginning has given way, and that he is now welcomed and his advice appreciated by both commanders and crew.

140. Great attention was paid to the sanitary condition of the river and Sanitation of the river. river banks and many improvements were effected. The embanking of the filthy foreshore at Nimtolla was completed, and this put a stop to the accumulations of animal and vegetable refuse at that place. The jungle on the premises of the East Indian Railway Company at Howra has been removed, and a tiled mat latrine to the west of the coal jetties has been provided for the workmen, to which they are compelled to resort instead of to the foreshore as formerly. The night-soil from this latrine is removed in a covered cart by the Howra municipal mehters. The latrines on the jetty-head on the Peninsular and Oriental Company's grounds at Garden Reach have been demolished, but others in their place have not been constructed. There is some dispute as to who should provide them and the matter is being inquired into. The latrines in the Government Dockyard premises, from which night-soil used to find its way into the river, have been removed and new ones built, the night-soil from which is removed by the suburban municipal mehters. The police now arrest persons found soiling the river banks on the premises of the ex-King of Oudh at Garden Reach. Constables are now on guard to prevent the defilement of the banks or the stream of Tolly's nullah. The consequence is that the water which comes down is now much cleaner than it used to be. The latrines which used to discharge night-soil into the river situated on the premises of the Ghosrey Cotton Mills, of the Union, Howra, Hooghly, Commercial and Caledonian Docks, of Mr. Apcar at Garden Reach, of the Imperial Messageries and of the East Indian Railway Company at Howra, have been closed and others, unconnected with the river, have been built in their stead. The night-soil from the Fort is still made to flow into the river. At low water the soluble portions of this and much of the suspended matters float out with the remaining ebb, and return with the longer flood. The insoluble and most part of the suspended matters must be deposited under the shipping, which ground is therefore rapidly silting up. Though Dr. French says he has traced no actual outbreak of disease to this cause and supposes the reason to be that the faecal matter floats past the shipping in a fresh and undecomposed state, yet decks and cabins are washed with this water, and the same buckets are sometimes used for carrying ordinary drinking water. Dr. Mackenzie distinctly observed its injurious and fatal action. It is still to be regretted that this sewage has not been conveyed away by the main sewers of Calcutta. A canal runs through the ex-King of Oudh's premises into the river. It is about four or five miles in length, and along its banks there are a number of *tattie* latrines. The Magistrate of the 24-Pergunnahs has been addressed upon this subject.

141. One hundred and twenty-eight corpses and 2,528 carcasses were Corpses and Carcasses sunk. sunk in the river by the conservancy boats. A good many of the corpses come down Tolly's nullah.

142. *Burdwan Town.*—Eight additional latrine circles were established, and now the private privies of 1,400 houses are under municipal supervision. Two urinals were Sanitary progress made during the year. sanctioned to be constructed near the Judge's and Collector's courts. A

scheme is in hand by which all the principal tanks will receive a supply of pure water from the Damuda river. In the *Jehanabad and Kotulpore thanas* measures were adopted to keep open certain obstructed drains and to empty foul cess-pools which were injurious to health.

143. *Bankura Town*.—Bye-laws were framed, a large tank was set apart for drinking purposes and the drinking wells were provided with iron buckets. The conservancy arrangements were placed upon a better footing. The *serai* for the pilgrims is to be converted into a leper hospital. The construction of latrines (there being none), the trenching of the night-soil, the cultivation of the trenching ground and the prevention of promiscuous cremation, are under consideration.

144. *Bishenpore Town*.—The Commissioners undertook to look after the general conservancy and roads by rotation, eight tanks were set apart for drinking and bathing purposes, respectively, several ponds were filled up and excavations prohibited.

145. *Mudnapore Town*.—Two public latrines were constructed and provided with proper receptacles for feces and urine, and four more were in hand to be completed by March 1879. The Monghyr system of trenching night-soil is to be adopted. Two iron night-soil carts were purchased, three well-privies were closed and 16 private privies adjacent to wells removed. The public wells were provided with buckets and chains attached to them for general use, tanks were set apart for drinking purposes and steps were taken to prevent them from receiving surface drainage from adjoining lands that were used as latrines. Two overcrowded burial-grounds were closed, the burning-ground was provided with a laterite platform, the pathway leading to it was raised and metalled, contractors were appointed to supply wood for cremation at Rs. 1-8 per body, and throwing of dead bodies into the river was prohibited. Steps were taken to have the levels of the town taken by the District Engineer for the improvement of the drainage. The floor of the municipal slaughter-house was cemented, a well and cart for removal of offal, &c., provided and a public latrine is shortly to be constructed near it.

146. *Hooghly Town*.—A new latrine, a proper dead cart and improved burning ghâts were provided. A scheme is about to be taken in hand for introducing water from the Damuda into the Kana Nuddi, Kana Damuda, Suresutti, and other rivers, by which means the stagnant pools in these rivers will be supplied with fresh water for drinking and other purposes, and it is hoped that the villages, many of which have been depopulated by fever, may be benefited by this measure. Towards this project Government has agreed to contribute Rs. 20,000, provided the people will subscribe Rs. 15,000, the remainder of the estimated cost of the work. Besides this, the Government will allow the people the use of the canals already constructed at Gopalnuggur.

147. *Serampore Town*.—Several overcrowded burial-grounds were closed and a person appointed at each ghât to supervise burial arrangements and register deaths. A survey of the town is being made with a view to improve its drainage—an important measure, as the prevalence of fever is ascribed to obstructed drainage. Condensed steam-water from the mills has been made to run into many of the tanks to the greater advantage of the people, for the tanks here have always had very filthy water.

148. *Howra Town*.—The supervision of the public and private latrines was undertaken by the municipality under Act VI (B.C.) of 1878. Bye-laws were brought into operation. The town is to be supplied with water from the Damooda. The Government intends to bring the water into the Suresutti and the municipality to erect a weir at Jugdespore, eight miles from Howra, and to cut a canal from that place to Howra, where the water is either to be led through a series of tanks or be filtered and distributed through the town by pipes. Good tanks have been made out of swampy pools by deepening their centres and raising their margins. Overcrowding in lodging-houses has been looked after and prevented to some extent. The *bustis* in the town are being sanitated, by their narrow, crooked paths being widened, their swampy tanks and foul latrines put in order, and their drainage improved. The public latrine and night-soil trenching system have been very successfully worked here.

149. *24-Pergunnahs*.—The drainage of this district is to a great extent obstructed. The consequence is that the country is water-logged, the soil

saturated during a great part of the year, and much sickness prevails. The subject is receiving attention, and it is hoped that the schemes that have been prepared for improving the drainage will be carried out on an early date. Much attention has been paid to the sanitation of several municipalities in this district. Pools and tanks have been cleared and some of the latter reserved for drinking purposes, culverts erected, drainage rendered effective, &c. In the *suburbs of Calcutta* the penalties for promiscuous defecation were more strictly enforced. The present excellent system of conservancy is to be extended and a compulsory cess for clearing private latrines has been enforced. The night-soil is now buried instead of being thrown into the Calcutta main sewer. The drains have been cleared of obstructions and are kept fairly clean. Steps were taken to keep in a more cleanly condition the temple of Kali, its pond and sacrifice-yard, which were in a most disgraceful condition. A survey was made for improving the surface drains. The question of filling up foul tanks and water-holes was met by the extension of section 249 of the Municipal Act. The supervision of the burning-ghâts was attended to. Measures were adopted to close the overcrowded burial-ground and a new burial-ground for Mahomedans is about to be constructed. Gosain busti was improved and preliminary steps were taken for improving Sitaram, Bindabun, and Cossi bustis. The slaughter-house near the Zoological Garden, which was in a dangerous and offensive condition, was removed. In the *Satkhira Sub-division* Mr. Deverinne, a putnidar, and Babu Mohendra Nath Rai Chowdry, a zemindar, have directed their attention to the reclamation of silted up bheels and decaying jungle, which work, it is hoped, will render the sub-division healthier. In the *Barripore Town* the drains were re-excavated and the road running through the town cut into four parts and provided with culverts for the free flow of water. The clearing of a very large tank, which supplies half the town with water, was completed and steps were taken to excavate another tank. In the *Joynuggur Town* many tanks were cleaned and others are to be similarly treated shortly. In the *Dum-Dum Cantonments* a tank was excavated, and a subscription has been raised by the Mahomedans, to be supplemented with an equal amount offered by Government, for a burial-ground. In the sub-division the kutchra roads of 21 villages were repaired, the drains cleaned and a new tank excavated. In the *Goberdanga Town* a conservancy cart was provided. In the *Nyehatti and Baraset Towns* levels have been taken to improve the drainage. In *South Barrackpore Town* the drainage was greatly improved. They were cleared and their levels taken to make them work effectively. Culverts were provided and the village roads put into order.

150. *Kishnagaur and Ranaghat Towns*.—Bye-laws were brought into operation.

151. *Jessore Town*.—A latrine was constructed at Ghop and another near the Collectorate was in progress. A new conservancy cart was provided and better drainage carried out.

152. *Berhampore Town*.—Bye-laws were brought into operation, the mehters were registered, a new conservancy cart provided, the conservancy arrangements systematized, the night-soil ground brought under cultivation and a latrine, on an improved plan, constructed. The cleansing of a large number of private privies was undertaken by the municipality and the other privies were placed under strict supervision. Some objectionable privies were removed to more suitable sites. Pucca drains were constructed at the Sydabad portion of the town, with a fall to the eastward, by which means the water-logging of the town during heavy rains was obviated, and the rain water was utilized in filling a couple of tanks that used formerly to keep low and putrid. A hollow about 600 feet in length and 100 feet in width, in the heart of the town, which used to be the receptacle of all kinds of abominations from the surrounding houses, was filled up and pucca drains were constructed from this spot to the Lukhipore jhil and thence to the Bistopore jhil, which carry off all the surface water to the jhil. Babu Ram Das Sen, a zemindar, and Babu Denonath Gangooly, the Government pleader, both of whom are also Municipal Commissioners, have undertaken to improve two objectionable hollows close to their respective residences, turning them into gardens for flowers and vegetables. Three sites for burial-grounds were selected and a good incinerator was provided for burning the pauper dead and the corpses found floating in the river. More incinerators are to be constructed.



153. *Murshedabad City*.—The drainage of this town, which is in a very bad condition, is to be improved by constructing a main drain leading to the Gobra nullah, which will cost Rs. 28,197, half of which has been given by the municipality and half by the Nizamut. Bye-laws have been brought into operation.

154. *Dinajpore Town*.—Two public latrines on the dry-earth system were constructed and more are to be provided, the resorting to the sides of roads banks of river, &c., was prohibited, well-privies in private houses were closed and proper privies constructed in their place, and the private privies have been taken under municipal supervision. On the whole, the conservancy system is better attended to. Several tanks were cleared, some emptied, and the impure earth removed. This work is being gradually proceeded with. Obstructions to the drains were removed systematically from their junction with the river to their sources, preliminary to carrying out a proposed drainage scheme for the improvement of the town and district. The stagnant Gogra river, the chief cause of the unhealthiness of the civil station, was cleared out. Burial within town was prohibited, all private burial-grounds except three were closed, and burning-places appointed.

155. *Bauleah Town*.—One public latrine was constructed and five more were in hand. Two burial-grounds for the Mahomedans were opened out and chokidars placed in charge of them. The methers were increased from 6 to 12, 3 night-soil carts and 14 tubs provided, and arrangements made for trenching night-soil. A number of private privies bordering on tanks were removed and others constructed in their place in a manner that prevents the flow of offensive matters into the water. Steps have been taken to introduce Act VI (B.C.) of 1878 into certain parts of the town with a view of having the public and private latrines more effectively controlled by the municipality, and to adopt the dry-earth system of conservancy. Night-soil carts have been purchased. Excavations without previous sanction have been prohibited. Application has been made for the services of a competent Engineer to take a survey and levels of the town for a drainage scheme, as the town is gradually becoming more and more unhealthy for want of proper drainage. Ground for trenching night-soil is to be provided. The drinking-water tanks have been and are being cleared. An incinerator for burning the pauper dead and the bodies of those dying from contagious diseases is to be provided.

156. *Rungpore Town*.—Twelve methers were imported from Allahabad. Now the bazars and principal thoroughfares are regularly swept. Two public latrines were constructed, two night-soil carts provided, and jungle and low vegetation completely removed. It is intended to adopt the Burdwan system of conservancy and disposal of night-soil. The tank near the court was set apart for drinking purposes. Burning and burial-places were selected and interment and cremation elsewhere prohibited. The great need of the town, the improvement of the drainage, was taken in hand and partially carried out. By this scheme the bhils on the north and east are to be joined by connecting cuts, and one long cut from the lowest of them will carry the drainage into the old bed of the Ghoghat, which is to be followed down, cleared wherever silted up and cut wherever the fall is lost, until its junction with its flowing portion is reached. It is also intended to clear its upper portion which lies in the south of the station and to utilize it as a channel for the surface drainage of the portion of the town lying south of the embanked road that goes through its whole length, while the bhils will catch and pass on the water from the south of this road. It is hoped that this measure and the removal of decaying jungle will correct the unhealthiness for which this town has a melancholy reputation.

157. *Bogra Town*.—Bye-laws were brought into operation. It is now hoped that the conservancy and other sanitary arrangements, which are deplorably bad, will be properly regulated. In the district two important culverts and a bridge were constructed, and a tank on the north of Bogra thana was set apart for drinking purposes.

158. *Pubna Town*.—The drainage and conservancy arrangements were improved, and a bund was made across the Ichamutti river below the town to retain a good supply of drinking water.

159. *Serajgunj Town*.—Bridges, drainage works, and a dispensary were constructed.

160. *Darjiling Town*.—The water-works scheme, under modified arrangements, was taken in hand and will, it is hoped, be completed in a few months. Additional ground for trenching night-soil is to be taken up and Government asked to give a grant-in-aid for the purpose.

161. *Kurseong Town* is the most important place in a sanitary point of view in the Darjiling district. It is now the head-quarters of the Northern Bengal State Railway, and its conservancy, water-supply, and drainage arrangements are very unsatisfactory. The need for converting it into a municipality was therefore very great, and this has been done.

162. *Dacca Town*.—One hundred and twenty-nine objectionable private privies were closed and others, on a better plan, constructed, the cleansing of which was undertaken by the municipality. Pathways were opened into several over-crowded blocks of houses to allow of easy access to the privies in them. Committing nuisances in jungles, waste places, &c., was watched and the defaulters punished by law. A masonry platform was erected for slaughtering cattle and a mehter appointed to keep it clean. The great event of the year was the opening of the water-works. The water is at present distributed in the principal streets only, and is freely used by the people. But the full advantage of this scheme cannot be enjoyed unless it is extended to the rest of the town and all foul wells and cess-pools are closed. At first the water contained a larger quantity of free and albuminoid ammonia than the river water, but after a time it was found to be free from opacity and bad smell, and is used with great advantage in the Lunatic Asylum. It was sent to the Chemical Examiner, but the result was not declared up to the time of writing the report.

163. *Furridpore Town*.—A public latrine near the court was constructed and another is to be built shortly. The cleaning of 84 private privies was undertaken by the municipality. An old tank in Goalchamut was re-excavated, enlarged and set apart for drinking purposes.

164. *Syedpore Town*.—A tank was excavated.

165. *Barisal Town*.—Bye-laws were brought into operation, mehters are about to be imported, and a site for a burial-ground for Mahomedans was selected.

166. *Muktugachi Town*.—A large tank was excavated for the supply of good drinking water.

167. *Chittagong Town*.—Drains and public latrines were constructed, conservancy carts supplied, steps taken to keep the streets of this hitherto filthy town clean, and 10 private burial-grounds closed. The Commissioner of the Division remarks that a large sum (Rs. 30,000) granted by Government in 1873 for sanitary improvements, a portion of which has been spent on objects of very doubtful utility in a sanitary point of view, has not yet been utilized, and that it is probable that it will be withdrawn. It appears that the cause of this is that no one thought of carrying out improvements by instalments, and that all general schemes were found to be too costly and therefore abandoned. Anyhow, however, this neglect is very much to be regretted, as the inspection of this town in March 1878 disclosed that it was very dirty, the surface cleansing of even the bazar was imperfectly done, the public latrines were unclean and not much frequented, and wayside deposits, dirty and uncleaned privies were common; and the Civil Surgeon now reports that the drainage of the town is deplorable, that in certain parts the water collects in pools, that the tanks at the backs of houses are filthy and full of rank and decaying vegetation, and that the soil is redolent with the accumulated excreta and the filth of years.

168. *Patna Town*.—Additional bye-laws relating to sanitary matters were brought into operation. The dry-earth system of conservancy, referred to in the report for last year, having been found to work successfully, was extended and it is intended to embrace the whole town in the scheme. Twenty urinals were set up in different parts of the town, and an additional latrine was sanctioned. The construction of the pucca drain in the chowk, intended to carry off water to the low lands in the south, was completed. The kutchra drains were rendered effective. The Bankipore canal was levelled to prevent the lodgment of water in its bed. The reclamation works of the Shaik Mehta gurhi were completed. The land has been laid out in beds for cultivation, a metalled road made round the Serpentine tank and other roads connecting this with the city roads are in course of construction. This once

place in the heart of the thickly-populated town is a great boon to the people and is the only place they can resort to for fresh air. A survey is about to be made and levels taken with the view of improving the drainage and constructing a system of water-works, the water to be obtained from the Sone or Ganges.

169. *Gya Town*.—A survey for improving the drainage has been made, but not yet utilized, a new market was built and another is being constructed.

170. *Mozufferpore Town*.—Bye-laws were brought into operation. Extra latrines, night-soil trenching ground and a new slaughter-house were provided, and an enlarged and improved market was built. The roads have been much improved also.

171. *Durbhunga Town*.—A channel of the uniform breadth of 10 feet was constructed from Gopalpore Ghât road to the railway station tank (Hariapukur) which is connected with most of the large tanks in the town. This renders the entrance of the river water easy and has improved the drainage with reference to the overflow of the river. The main channel leading to the tanks in the north-west of the town was also widened. Two filthy tanks were filled up. Two wells, to be 50 feet deep, are being sunk.

172. *Arrah Town*.—The drains beneath the platforms which encroach on the lands are to be made pucca. Levels are to be taken with the view of improving drainage. The conservancy arrangements are to be improved, a latrine is to be constructed, 12 tarred gumlahs, to serve as urinals, are to be placed near the market and mehters engaged to empty them near the Gangni nullah. The private latrines are to be taken under municipal control, the night-soil trenched and the ground cultivated.

173. *Chupra Town*.—Bye-laws were brought into operation, a latrine was constructed in the outskirts of the town having accommodation for males and females, a pucca drain was made in Kuttra bazar, river water was brought into several tanks, and cremation within municipal limits prohibited.

174. *Sewan Town*.—Bye-laws were brought into operation.

175. *Motihari Town*.—New pucca drains were constructed by the people and the municipality. A large canal six miles in length was cut from the Sikrana river to the lakes in the south and west, which have almost dried up since the Gunduk embankment was constructed. Owing, however, to the almost dead level of the country this canal is useless, unless the Sikrana rises sufficiently high. The canal is to be deepened. The water of 11 wells was analyzed with different results, the water in two—one in Chittakuni village and the other in Dr. Meadows' compound—being the best. Three plots of land outside the municipality were selected, two for burial-grounds and one for a burning-ghât.

176. *English Bazar Town*.—Head supervising mehters were appointed and the police directed to look after all the mehters. Dense jungle and overgrowth of trees were reduced extensively. The throwing of corpses and carcasses, and the steeping of bambus and reeds, in the tanks were prohibited, and the roads and drains improved.

177. *Monghyr Town*.—A survey has been made for improving the drainage, four carts and two bullocks were purchased, and five urinals constructed. This town keeps the lead of all others in Bengal for effectual sanitation.

178. *Jamulpore Town*.—Bye-laws were brought into operation.

179. *Bhagulpore Town*.—Thirty mat latrines were put up and some well-privies closed. The latrine system in ward No. 2 is to be systematized and four night-soil carts provided. The private latrines in Sujagunj are to be controlled by the municipality experimentally. Steps have been taken for providing a proper burial-ground, for closing the private ones, and for having special burning-ghâts and contractors to supply wood for burning the dead.

180. *Colgong Town*.—The polluting of the channel below the town from which drinking water is obtained was prohibited. Two public latrines were constructed, land for trenching night-soil was taken up and a mehter and a mehtrani were engaged to clean the latrines and bury the night-soil. Arrangements were made to appoint places for burning and burial.

181. *Purnea Town*.—The kutchra drains were made to work effectively, and two conservancy carts provided.

182. *Kishengunj and Khagra Towns*.—Latrines were constructed and the drainage improved.

183. *Deoghur Town*.—Two temporary latrines, two new roads and pucca drains were constructed. Efforts were made to induce the people to drink well

water instead of the water of the foul tanks, some wells were dug on the roadside for pilgrims, and burning and burial-grounds selected.

184. *Dumka Station*.—A well was dug in the bazar for drinking water.

185. *Cuttack Town*.—Bye-laws were brought into operation. The conservancy arrangements were re-organized and somewhat improved; six additional conservancy carts, one night-soil cart and two handcarts were provided; the night staff was increased by 12 men; arrangements are in hand to provide public latrines; the cleaning of the private latrines is to be undertaken by the municipality, and the night-soil trenched instead of being discharged on the sands of the river. Levels were taken, and the drainage of the eastern half of the town has been improved. The drainage of the rest is soon to be taken in hand; after which it is intended to organize a water service, by leading through a system of pipes the pure water from the irrigation canals which head up a perennial and inexhaustible supply of it, high enough to be distributed through the town by gravitation. Steps were taken to close the overcrowded burial-grounds and to provide two in the eastern and western ends of the town, and two burning-ghâts were set apart.

186. *Poorê Town*.—The conservancy establishment was reduced owing to the lodging-house funds having fallen off and the reserve funds being required for drainage works. Two pucca public latrines were constructed to replace the old kutcha ones. Passages were opened into blocks of buildings to allow of easy access to the privies in them. A tank was emptied, cleaned, guarded from pollution and reserved for drinking purposes. The most important work was the improvement of the drainage of the town by the completion of a drainage channel running from the principal road 4,000 feet towards the sea, and connected with other drains acting as feeders. Formerly the large quantity of water which surrounded the lower part of the town could not be entirely drawn off, while the surface drainage of the rest of the town, which is higher than the suburbs, although quickly absorbed into the sandy subsoil, stood within one and a half to two feet of the surface. Thus the town, excepting that part of it about the temple, could not be kept free from stagnant subsoil water. This evil has been obviated by the carrying out of this drainage scheme.

187. *Balasore Town*.—Two latrines were constructed, which are now much frequented, and resort to fields and roadsides is consequently lessening. Land near the distillery was taken up for trenching night-soil. Street sweepings and refuse are now employed in filling-up hollows instead of being thrown on the sides of the roads. Buckets and chains were attached to the public wells for general use. A market was constructed by Babu Womesh Chunder Mundle. Steps were taken to confine cremation to specially-appointed places and the practice of cremating in private gardens was done away with. A burning-ghât has been constructed and a burial-ground for Mahomedans selected and the others closed. Measures were adopted to prevent pilgrims from entering the town in future at festival times, if sickness is apprehended. The Act prohibiting the practice of inoculation was brought into operation in the town, and a vaccinator engaged for the working season.

188. *Hazaribagh Town*.—Blocks of houses were opened up for ventilation and cleaning, bye-laws were framed, and greater attention was paid to the drainage.

189. *Ranchi Town*.—Bye-laws were brought into operation, several public latrines, with accommodation for males and females, were erected: they are much resorted to. Trenching-grounds are to be provided. The two old markets in the middle of the town were closed and two others in their place constructed at some distance from the inhabited quarters. Tanks were set apart in different parts of the town for drinking and washing purposes respectively, and an analysis of tank and well water was being made. A place for slaughtering cattle is to be provided. A new cemetery for the Christians was established. The cooly depôts have been provided with good water, cook-rooms, latrines and means of ventilating; the sleeping rooms and their surroundings are looked after and overcrowding prevented.

190. *Purulia Town*.—Two public latrines were constructed, tanks set apart for drinking purposes and for washing of clothes respectively, and the wells provided with iron buckets for general use.

191. *Jhalda Town*.—A burial-ground was provided and the police directed to look after it.

## SECTION X.

## GENERAL REMARKS.

192. DR. LETHBRIDGE carried on the duties of this office in addition to those of Inspector-General of Jails, Lower Provinces, up to the 11th January, when he was relieved by Dr. Harvey, who continued to officiate until the 13th August when he was relieved by Dr. Joubert. Dr. Joubert officiated until I resumed charge of the appointment on the 19th November.

Places visited and inspected during the year.  
*Municipalities and Towns.*

<i>In January.</i>			<i>In April</i>		
Midnapore	...	...	Bogra	...	By Dr. Harvey.
Balisore	...	...	<i>In August.</i>		
Bankura	...	...	Bhagulpore	...	By Dr. Joubert.
<i>In February.</i>			<i>In September.</i>		
Ranchi	...	...	Darjiling	...	Ditto.
Purulia	...	...	<i>In December.</i>		
Chyebussa	...	...	Howra	...	...
Gya	...	...	Arin	...	...
Suburbs of Calcutta	...	...	Patna	...	...
Burdwan	...	...	Serampore	...	...
<i>In March.</i>			Hooghly	...	...
Cuttack	...	...	Chupra	...	...
Rungpore	...	...	Buxar	...	...
Chittagong	...	...			
Dinajpore	...	...			

*Dispensaries and Hospitals.*

<i>In February.</i>			<i>In March—continued.</i>		
Durbhunga Raj Dispensary	...	...	Dinajpore Dispensary	...	...
Burdwan Charitable "	...	...	Mahgunj "	...	...
Cuttack, Jambh, False Point "	...	...	Rungpore "	...	...
Ditto, Hukitollah "	...	...	Ditto Police Hospital	...	...
Ditto, General Hospital and Medical School Dispensary	...	...	Ditto State Railway Dispensary	...	...
<i>In March.</i>			<i>In April.</i>		
Cuttack Lunatic Asylum	...	...	Bogra Police Hospital	...	...
Ditto Branch Dispensary	...	...	Do. Charitable Dispensary	...	...
Chittagong Hospital	...	...	Natore ditto ditto	...	...

the towns is improving year by year.

Resuming my appointment so late in the year and at a time when races and Christmas holidays caused interruptions, I was not able to do much visitation work before the end of the year. But, as the previous visits had been necessarily irregular, I determined to inspect all the chief towns that had not been visited by a Sanitary Commissioner during this and the preceding year. These inspections have been all but completed up to the present time (April 1879), so that of these only three remain uninspected. Since I commenced my visitations in November, 28 civil stations and towns and 15 different dispensaries have been inspected and reported on. All the rest of the towns in Bengal can easily be got through before the current year (1879) closes.

194. As Professor of Hygiene in the Medical College, Dr. Joubert delivered 20 lectures to 133 students in October and November.

195. In February the Sanitary Commissioner was appointed *ex-officio* Inspector of Hospitals and Dispensaries in order that in the course of his ordinary inspections of stations in Bengal, he may assist in securing uniformity of management and increased efficiency in the supervision of local Committees throughout the country.

196. Dr. Lethbridge was requested in January to report which of the two sites—Kanahi Misser's tank or the Abkari godown—proposed for the new civil station of Durbhunga was the best in a sanitary point of view. Dr. Lethbridge not being able at the time to visit Durbhunga, Dr. Harvey, after inspecting the places, stated that while, for

193. The municipalities and towns and the hospitals and dispensaries that were inspected during the year are named in the margin. A brief notice of the principal points to which attention was directed, the suggestion made to improve the condition of these towns, and the action taken on them, will be found in Appendix IV. It is clear that these inspections are bearing fruit. With few exceptions, there is an earnest desire on the part of the Chairmen and Municipal Commissioners to give effect to these suggestions as far as possible, and the sanitary condition of

Lectures on hygiene delivered.

Sanitary Commissioner appointed *ex-officio* Inspector of Dispensaries.

Report on sites for civil station at Durbhunga.

reasons furnished, neither of the sites was good, that of Kanahi Misser's tank was the better of the two.

197. Dr. Harvey was appointed President of a Committee appointed in March to inquire into the causes of the unhealthiness of Dinajpore and the measures necessary for improving its sanitary condition. The conclusions arrived at by this Committee are given in paragraph 138 of this report.

198. His opinion was asked by the Commissioner of the Presidency Division, under Government orders, as to whether the burial-ground in Entally, known as D'Souza's, should be closed against further burials, and also whether burial in an adjoining plot of ground, given for the purpose by Mr. D'Souza, should be prohibited on the grounds that the existing one was overcrowded and that it and the extension being situated in a densely-populated locality such burials would be detrimental to the health of the people. Dr. Harvey, finding that the existing burial-ground was deplorably neglected and so much overcrowded that it had been used over and over again, submitted that it should be closed; but, understanding that this could not be done without inflicting great hardship on a large community, he suggested that it would be better to inter in the new ground if a better site could not be obtained, as it would be less objectionable to use it than to go on burying in a soil which had received a succession of bodies for years.

199. He was requested by Government, through the Surgeon-General, Bengal, to give his opinion on a scheme for the prevention of illicit prostitution and the more efficient working of the lock-hospital system. He concurred with the recommendations made by Dr. Payne, the Superintendent of the Presidency Lock-hospitals, and only submitted whether it would not be possible to raise the means required to work the Act otherwise than by levying fees from the women, as the plan might be denounced by a certain class of thinkers as a new sanction of prostitution by Government.

200. He was also requested to report on those portions of the inquiries of the Famine Commission which refer to mortality the inevitable consequence of famines, to the depopulation they have caused and how far such depopulation was the result of an increased death-rate, emigration, or a decreased birth-rate, and to other cognate points. This report was submitted by Dr. Joubert.

201. Dr. Harvey was made a member of a Committee appointed to inquire into a representation made by the Consulting Engineer to Government of India, Guaranteed Railways, that the malarious condition of the lands on both sides of the Chitpore barracks and also of certain lands bordering on the Circular Canal at Narkuldanga, is the cause of much sickness among the railway staff. The report of the Committee is with Government.

202. Dr. Joubert was appointed President of a Committee appointed to prepare draft rules for the medical inspection of vessels coming to the port of Calcutta and for quarantine in the said port, in accordance with the principles laid down by the Government of India in Home Department Resolution of the 19th September 1876, reviewing the history of the question of quarantine in India since the passing of Act I of 1870. The Committee submitted a very carefully-considered and comprehensive set of rules on both subjects.

203. On the representation of the Agent, Eastern Bengal Railway, that the village of Shamnuggur, in the North Barrackpore Municipality, caused much sickness—fever—among the employes in their dockyard and coal depôts and in the jute factory and cotton mills of Messrs. Schoene, Kilburn & Co., situated near this village, the Magistrate of the 24-Pergunnahs asked Dr. Joubert to visit the locality and state what should be done to improve its condition. Dr. Joubert found that a strip of land on the eastern bank of the Hooghly, on which were situated the above-mentioned institutions, the residences of the European employes, a very large bazar and several native bustis, was cut off by a dense belt of jungle, chiefly of bambus, which impeded perfilation of air, except.

from the north and north-west; that in places where the bambus are less abundant there were other trees and an undergrowth of jungle plants, also very dense; that scattered through the jungle were many foul tanks and swamps; that in many places the soil appeared to be completely water-logged; that several thousands of people lived in this village under the most insanitary conditions; that there was no attempt at surface drainage or conservancy; and that the natives resorted for purposes of nature to the jungle in the immediate vicinity of their houses. Considering that to clear away the jungle would involve an annual recurring expenditure, unless the land could be put under cultivation, or the owners be made to clear them under the provisions of Act V (B.C.) of 1876, he reported that the second suggestion of the Railway Agent should be adopted, viz. to cut three gaps, 200 feet in width, through the belt of jungle—and he also strongly recommended that surface drains be at the same time made in these gaps or alleys to drain and prevent the re-formation of swamps during the rainy season; that the land thus reclaimed be cultivated; that as Shamnuggur is within the North Barrackpore Municipality, section 201 of the Bengal Municipal Act be put in force; that proper latrines with establishment be provided for the main bazar; and that arrangements be made for burying the night-soil. The municipality was prepared to drain the land in the proposed gaps, provided the companies concerned cleared the gaps, inasmuch as there was always a difficulty in dealing with bambu jungle, as the owner could scarcely be ordered to remove it as a nuisance, while it is expensive to buy. Nor could the municipality carry out the suggested conservancy arrangements, as Part VII of the Act is not in force in the Municipality and the funds were insufficient to carry them out.

204. At the request of the Protector of Emigrants the opinion of this department was asked by Government as to whether the presence of coal as ballast in the holds of emigrant ships leaving this port is likely to have an injurious effect on the health of the emigrants. Dr. Joubert submitted that in itself coal was not likely to have the injurious effect apprehended, but that there would be great risk to life were the large quantity of coal to take fire, and that the danger would be specially great in emigrant ships from the fact that a very small proportion of the emigrants could be accommodated in the usual number of boats carried by these ships.

205. My opinion was asked by Government in November as to whether the minimum diet scales proposed by the Shipping-Master of Calcutta for native seamen—one for foreign-going and the other for home trade ships—contained all absolute necessities in sufficient quantity. A report was submitted modifying the scales in some respects, substituting flour, sooji, or potatoes, for some portion of the rice, decreasing the dāl and ghi, substituting mustard-oil for the decrease in the latter, and increasing the fish and vegetables.

206. I was also asked, on the proposal of the Commissioner of Assam, to assist the Superintendent of Emigration in preparing a scale of diet for emigrants under Act VII (B.C.) of 1873. We jointly submitted this report and a diet scale suitable for emigrants in transit in steamers to the tea districts, having due regard to their habits and mode of living in their own homes and on boardships.

207. The frequent visitation of towns by the Sanitary Commissioner is more needed at the present time than they will be in future, for the sanitary working of municipalities is in its infancy yet, and requires watching and systematising. Their very efforts to do good require correction, for false steps and expensive measures have either been commenced or carried out in a few cases, which a prior reference to my office or an inspection visit would have prevented. As instances of the kind, I may observe that of drainage. The civil station roads have had their sides, and in many cases their centres also, repaired by taking earth from the ditches running along their edges. These excavations, going on year by year, have so deepened the drains and made them so irregular that, in order to get them to carry off the storm-water at all in our flat stations, the outlets have to be deepened very considerably, and the drains have to be extended long distances. In



Murshedabad, for example, these outlets have had to be made 10 to 12 feet deep, and the drains to be extended so very much that the municipal funds cannot bear the expense of carrying the work to completion. Such drains involve much expensive masonry in their construction and, being deep, unequal and not working effectively, now require to be filled up to near the surface and converted into wide, shallow ones. It is obvious, therefore, that they should not have been begun without reference to this office, or before advice was received at a visit, and that the expense and their unnecessary depth and length would have been avoided and a better outfall secured at a much less cost had this been done. Generally these deep drains are full of filthy accumulations in the dry months, for they cannot be cleaned by the sweepers, get choked with vegetation, and are always irregular and so unequal in dealing with the storm-water when it does come, that one part of it overflows the neighbourhood while another is dry, and when the rivers rise suddenly, a reverse current often sets in the deeper ones and the town is flooded by the backward stream. These deep drains also involve two other evils. One is that they are dangerous to traffic. As extraordinary examples, though less egregious ones are far from uncommon, I may mention that a camel rolled off the road and fell, back down, into one of these drains in Soori, got wedged in so deeply that it could not be got out, and died in the drain. Again, a horse backed off the road into a similar drain in Dacca, and had to be got out through a narrow culvert under the road which led into a neighbouring tank. The other evil is worse. In the towns these deep drains run along between the streets and the houses. At first, the shop-keeper projects a bamboo shed over the drain supported by poles, and covers the drain with wood or a narrow brick arch. Under this cover and on this temporary platform, he exhibits and sells his wares. Later on, and bit by bit, the drain becomes arched over and the projection above and the poles alongside are replaced by pucca pillars and roof, the road is encroached on and narrowed for traffic, and the storm-water from the streets cannot get into the drain, which now becomes a part of the house. Not only can such drains not be cleaned now, but they are too often the receivers, through holes in the walls, of kitchen refuse and urine and fæces, especially of children, which saturate the foundations, rise through the walls by evaporation, and even affect the drinking water in the well adjoining the house. These encroachments exist in almost every town in Bengal. In many they were certainly brought about before municipal laws came into operation, but in many they are now progressing. Most Municipal Commissioners and many Magistrates also, cannot be got to suppress or prevent them; and yet this could be done by a little kindly explanation to the people, showing the injurious effects of the measure, how it obstructs the traffic in the already too narrow streets, how it impedes street drainage and prevents the cleaning of the drains, and how by these means the health of those living and rearing families over such sinks of putrefying filth suffers severely; and how, on the other hand, by cutting back steps into their own verandahs, an easy and sufficient access to their own houses would be obtained, and also all the above evils be prevented.

208. With regard to conservancy, the municipalities require much active looking after at present. They err in many points.

On conservancy—Public latrines.

A latrine is sanctioned in Committee and ordered to be built, but the plan adopted is often so very expensive, costing Rs. 800 to 1,000, that all the spare funds are spent in constructing it, and further progress prevented for a long time. I have shown the municipalities how half-a-dozen latrines can be erected for this sum and in a far more perfect manner as regards drains, fæcal receptacles, and disposal of night-soil. The next error lies in the sites chosen for these latrines. I have before noticed that Commissioners who, having to abide by the zenana system, are compelled to have well-privies beneath their own houses, and who permit the accumulation of any amount of fæcal contamination in the back lanes, jungle, and waste places around the compounds of their houses, will not, without the greatest difficulty, allow public latrines to be erected close to the markets, schools, courts, the places where boats land, and the houses of the poor who can have no latrines of their own. A site must be, and often is, chosen out of town and too far for the people to resort to it. Thus a latrine is erected at immense expense in a place where it is not required or but little used, and the conservancy of the towns continues almost as bad as ever.



209. Again, the difficulties of getting rid of the private latrines, or having them reconstructed on a better plan and cleaned by the municipal sweepers, are the greatest of all. *On private latrines.* The private sweepers often combine together, so that owners are at their mercy. They do not clean the privies daily, nor do they carry the night-soil out of town and bury it, but throw it into the nearest ditch, jungle, or waste place, and leave it there. I have shown constantly that it is cheaper to the people, in a very great majority of instances, for municipalities to take these latrines into their own hands and to levy fees, less than those given to private servants, for cleaning them, giving a part to each public sweeper, so that the more houses he cleans the more pay he will receive, the rest of the fees going to supply night-soil carts, wheel-barrows, baskets, trenching tools, &c. The rule should be gradually enforced that every man and householder should either have his own latrine, and that properly constructed and cleaned, or that he should resort to the public latrine provided for him, and to nowhere else. In carrying out the system of having private latrines cleaned by the municipal mehters, the police and the sweepers are our best agents. I shall refer to the former presently, but the latter, having regard to his own interests, will naturally keep watch on every private latrine which is attended to by a private sweeper. He will report if the former is left long unclean and if the latter throws away the night-soil where it affects the drains, wells, tanks, or becomes a nuisance to the neighbourhood. The people who have adopted this plan find its greatest benefits in three ways, viz.—1st, they cannot be punished for having unclean latrines; 2nd, they have only to complain of the neglect of the sweeper to have him punished by the municipality; and 3rd, the night-soil is carried away from their own compounds and buried innocuously out of town. The fluid refuse is very largely overlooked, and yet it generally contaminates the house drains in the manner already alluded to. This evil is being slowly remedied.

210. Again, the trenching grounds are held by Commissioners to have the same objections as to proximity as the latrines. *On night-soil trenching grounds.* Bengal towns are usually built along rivers and roads. They are therefore, as a rule, very narrow and of great length. If the trenching ground be two miles off at one end, as is often the case, the carts have the more to do and the further to go, and therefore go the seldome and do the less conservancy.

211. There is a strong tendency everywhere to entertain many and highly-paid municipal servants. I fear that Municipal Commissioners will occasionally provide for a friend at the expenso of the town, who might not otherwise have been required. This does not refer altogether to the conservancy department. Thus, a clerk, road-overseer, registrar, assessor and conservancy-overseer are often separate appointments, on salaries which amount to a large sum and seriously tax the small income of the municipalities, which might be better expended on conservancy. For this reason I notice the fact, for establishments generally are beyond my province. I quote Jessore as an example where this subject is borne in mind, for there one Eurasian, on Rs. 50 per mensem, does all the duties of all the men abovenamed, and performs them effectually. Again, in the matter of conservancy overseering, the Magistrates at Deoghur and Monghyr have appointed a municipal police inspector and a number of constables to look after the working of the conservancy, and I have not seen cleaner towns than these. These are examples which are worthy of imitation, and yet the carrying out of the measure is thought to be impossible in other stations. I should like to see the whole of the municipal establishments compared with each other and with the work they do, because the most moderate suggestion I make in some stations is too often met by "it is impossible, as there are no funds." Such replies are, however, getting fewer year by year.

The control of the numbers and duties of the municipal constables have, of necessity, hitherto been left to the police department. I am glad to find they are becoming more and more exclusively municipal servants, and being utilized more generally in matters other than drill and mere beat work.

In the matter of minor municipal establishments, their services are not fully utilized and they are often in excess of the number required. Thus, a sweeper's wife can be made to live at the latrine and look after its general cleanliness, while the husband works the cart. This plan effects a saving in

numbers and pay. Again, by the employment of *domes* in lieu of some sweepers, the dead of men and animals can be disposed of without extra expense. But these plans are often ignored.

212. With regard to the disposal of the dead, we have much to contend with in all the towns, for the Mahomedans prefer to bury their dead in their own compounds, on the banks of tanks, or in conspicuous spots offensive to others. This practice is gradually ceasing to be carried on: the 100 burial-grounds of certain towns are dwindling down year by year. The wiser and more perfect mode of disposing of the dead among the chief Hindus—an example Englishmen would do well to follow—has also been improved, as incinerators are increasing in number, burning-places are better supervised, and more perfect cremation is the result.

213. As regards drinking water, much sensible anxiety is increasingly felt. I am often consulted by native gentlemen on this point, and even receive letters from them on the subject from distant stations. Platforms are being built round well-heads to prevent the filthy washings from bathers' skins re-entering the wells; tanks are being deepened, in the centre and having their margins raised against the inflow of surrounding surface impurities; but, above all, steam and river water are being let into the tanks to clean out and replenish them with a fresh and better supply. Many respectable natives now drink only water which has been first boiled and then filtered.

214. Advantage has been taken of fires to widen streets. Village lanes have been, in a few instances, straightened and opened up. Howra is an example. Instead of the more expensive and often badly-constructed culverts having too high basements and short wings, glazed tubes have been utilized for the narrower cross-street drains. Markets and slaughter-houses have been built on improved plans, lodging-houses are looked after, and fairs are not neglected.

215. With reference to statistics, I should be glad if the comparative work of each town and district were allowed to be printed and circulated quarterly, to show each Magistrate and police officer where others were succeeding better than himself. This did immense good some years ago.

216. Lastly, I have to express the wish to see our Civil Surgeons more generally used as Vice-Chairmen of Municipalities. I know they would dislike the worry this would cause them, yet the good they would do is very great, and the little trouble that the measure will involve should not be allowed to stand in the way. They have often a kindly or friendly influence with the native Commissioners which all Magistrates have not. Moreover, the Magistrate is in his district half the year, and preparing reports or engaged in close office work during the other half, while the Civil Surgeons are constantly at head-quarters. They should also be made Municipal Magistrates more often than they are at present.

I have thus striven to show that we are doing as much as is possible with the means at command quietly but persistently, and that, although systematic reforms in the sanitation of towns is still in a very backward state and much has yet to be done, appreciable progress is being made, and that there is every certainty that this progress will be more rapid and efficient each year to come.

217. The working of the office has been entirely in the hands of Mr. Hodge, the Head Assistant. It has been done on a good and effective system, no arrears being permitted. I have to thank him for abstracting the Civil Surgeon's reports while I was on tour, and for presenting to me clearly the results of the year's statistics which are noted in this report.

J. M. COATES, M.D.,

The 24th April 1879.

Sanitary Commissioner for Bengal.



APPENDIX No. I.

VITAL STATISTICS OF THE DISTRICTS IN BENGAL  
FOR THE YEAR 1878.



**ANNUAL FORM No. I.—Births registered in the Municipalities and Towns in the Districts of the Bengal Province during the year 1878.**

1	2	3	4	5			6			7	8	9
DISTRICTS.	Number.	MUNICIPALITIES AND TOWNS.	Population according to last census.	NUMBER OF BIRTHS REGISTERED.			RATIO OF BIRTHS PER 1,000 OF POPULATION.			Number of males born to every 100 females born.	Excess of births over deaths per 1,000 of population.	Excess of deaths over births per 1,000 of population.
				Male.	Female.	Total.	Male.	Female.	Total.			
	1	Burdwan	32,321	263	226	489	818	670	1519	116	.....	24.48
	2	Culina	27,386	55	35	110	201	201	402	100	.....	10.21
Burdwan	3	Sonamookhi	12,565	126	94	220	1002	714	1750	134	.....	17.04
	4	Rancegunge	10,578	61	44	119	311	245	556	127	.....	14.61
	5	Jehanabad	13,400	47	45	92	350	336	686	104	.....	4.77
	6	Shamabazar	10,636	64	51	119	346	260	606	131	.....	31.05
Bankoora	7	Bankoora	16,704	267	234	501	1540	1394	2934	114	.....	1.06
Beerbhoom	8	Bishenpore	14,017	304	261	569	1700	1416	3116	118	.....	7.70
	9	Soori	9,001	93	65	148	322	252	574	124	.....	10.80
	10	Madraspore	31,001	292	217	509	831	630	1521	121	.....	24.13
Midnapore	11	Chetral	12,147	105	94	199	744	655	1598	113	.....	19.86
	12	Chunderkona	14,144	77	62	139	633	429	962	124	.....	27.41
	13	Ramjibpur	10,668	84	71	159	824	670	1490	121	.....	8.53
Hooghly	14	Hooghly	34,761	340	245	585	974	814	1782	120	.....	20.97
	15	Malanghur	16,620	120	110	230	825	704	1529	117	.....	16.42
Serampore	16	Serampore	21,440	374	331	700	1546	1354	2900	111	.....	32.01
	17	Baidyabati	13,352	110	103	213	845	772	1597	107	.....	16.68
Howrah	18	Howrah	97,744	921	659	1,580	941	671	1615	140	.....	19.08
	19	Khamkol	14,637	24	16	40	119	119	238	130	.....	8.20
	20	Suburbia of Calcutta	2,871,119	1,761	1,543	3,304	640	600	1,240	113	.....	54.14
	21	North Suburban Town	24,127	241	195	436	908	806	1810	124	.....	15.47
	22	South do.	66,994	254	204	458	840	716	1556	124	.....	7.54
	23	Rajpore	10,346	76	36	112	731	317	1048	211	.....	47.16
24 Pargunnahs	24	South Barrackpore	28,189	142	125	267	604	544	1148	114	.....	17.45
	25	North do.	17,179	99	67	166	576	500	1076	148	.....	27.18
	26	Nyehatti	16,734	110	86	196	637	514	1151	129	.....	27.73
	27	Bissershat	15,821	177	118	295	1125	850	1975	130	.....	2.73
	28	Badua	12,490	95	75	170	744	631	1375	127	.....	8.20
Nuddea	29	Krishnagar	26,760	419	316	735	1500	1181	2747	133	.....	11.83
Jessore	30	Santipore	26,635	406	280	686	1417	978	2395	115	.....	4.37
	31	Jessore	8,152	47	45	92	670	662	1332	104	.....	24.39
	32	Berhampore	27,340	131	103	234	440	377	817	127	.....	14.83
Moorshedabad	33	Kandi	12,018	110	95	205	915	791	1706	116	.....	7.94
	34	Juniapore	11,561	95	85	180	836	744	1580	112	.....	13.65
	35	City Moorshedabad	40,182	280	294	574	606	636	1242	95	.....	22.76
Dinaghpore	36	Dinaghpore	14,000	25	18	43	157	226	383	70	.....	25.12
Rangpur	37	Bauleh	22,491	219	144	363	912	676	1588	140	.....	19.11
	38	Rangpur	14,945	50	54	113	307	364	671	100	.....	26.61
Bogra	39	Bogra	5,372	57	54	111	970	920	1890	106	.....	15.62
Pubna	40	Pubna	16,750	130	112	242	864	712	1576	121	.....	9.07
	41	Serajung	18,873	51	36	87	270	190	460	142	.....	3.08
Darjeeling	42	Darjeeling	8,137	26	22	48	628	607	1235	118	.....	34.53
Jalpaiguri	43	Jalpaiguri	7,185	50	34	84	806	629	1435	132	.....	19.35
Dacca	44	Dacca	62,212	626	498	1,124	904	705	1609	128	.....	8.97
	45	Naraingunge	19,011	121	120	241	1108	1030	2138	101	.....	4.61
Furcedpore	46	Furcedpore	9,197	151	138	289	1601	1601	3202	112	.....	4.56
Backergunge	47	Burisal	13,204	76	66	142	672	494	1166	115	.....	7.99
	48	Jamulpore	14,812	240	249	489	1715	1710	3425	90	.....	5.28
Mymensing	49	Kishoregunge	13,637	115	166	281	1063	1144	2207	93	.....	12.54
	50	Tungbail	16,244	144	114	258	840	840	1680	100	3.69	.....
Tipperah	51	Comilla	12,548	174	116	290	184	849	2693	151	7.55	.....
	52	Brahmanberia	15,372	810	292	1102	2016	1705	3721	118	16.19	.....
Chittagong	53	Chittagong	24,044	144	104	248	620	520	1140	110	.....	2.76
Noakhali	54	Saidpur	16,063	84	26	110	337	259	596	131	.....	.....
	55	Patna	1,68,300	2,533	2,062	4,595	15,84	12,97	28,81	123	.....	9.98
	56	Dinaghpore Nizamut	27,911	686	572	1,258	2039	2049	4088	102	8.02	.....
Patna	57	Bah	11,050	190	165	355	1800	1494	3294	121	.....	4.70
	58	Mokameh	10,715	208	245	453	2601	2280	4881	109	1.03	.....
	59	Futwa	11,296	190	179	369	1642	1531	3173	110	.....	1.06
	60	Behar	44,296	833	841	1,674	2160	1948	4108	111	6.88	.....
Gya	61	Gya	66,813	641	608	1,249	3107	1240	4347	116	.....	20.27
	62	Doodnuggur	10,058	93	71	164	924	700	1624	131	.....	13.38
	63	Arrah	30,380	621	457	1,078	1322	1160	2482	119	.....	4.28
	64	Nasraram	21,923	587	546	1,133	1640	1640	3280	112	.....	.....
Shahabad	65	Dumraon	17,356	140	102	242	841	841	1682	133	.....	6.71
	66	Buxar	13,448	247	160	407	1836	1190	3026	154	.....	4.03
	67	Mosufferpore	38,241	628	471	1,099	1840	1233	3073	112	1.67	.....
Mosufferpore	68	Lalgunge	12,338	61	68	119	494	470	964	105	.....	9.81
	69	Hajipore	22,406	159	144	303	712	646	1358	110	.....	1.96
	70	Sodamrhee	16,181	83	82	165	613	607	1220	101	.....	.....
Durbhunga	71	Durbhunga	47,450	642	504	1,146	1833	1622	3455	127	.....	3.41
	72	Chupra	46,297	550	440	990	1198	960	2158	125	.....	9.53
Sarin	73	Revilgunge	18,416	217	227	444	1617	1092	2709	96	.....	10.21
	74	Sewan	11,090	13	6	19	117	64	181	217	.....	4.08
Chumbarun	75	Bettiah	10,704	302	320	622	891	1070	1961	110	.....	12.03
Monghyr	76	Monghyr	60,004	903	673	1,576	1621	1130	2751	135	.....	1.81
	77	Jamulpore	10,453	201	267	468	2822	2745	5567	103	11.09	.....
Bhagalpore	78	Bhagalpore	60,675	622	450	1,072	1111	892	2003	127	.....	4.28
Purneah	79	Purneah	10,037	147	147	294	1104	916	2020	127	.....	24.74
Maldah	80	Englishbazar	12,430	125	113	238	773	878	1651	111	.....	34.14
South Pargunnahs	81	Doomka	11,193	38	33	71	833	285	1118	115	.....	2.14
	82	Cuttack	60,773	616	600	1,116	1210	2193	3403	123	.....	6.08
Cuttack	83	Kendrapara	10,682	276	265	541	2583	2480	5063	104	7.09	.....
	84	Jajpore	10,753	223	213	436	2073	1940	4013	103	.....	10.97
Balasore	85	Balasore	17,010	244	220	464	1363	1249	2612	111	.....	11.13
Hazaribagh	86	Hazaribagh	11,470	167	102	269	1430	923	2353	104	.....	23.61
Lohardugga	87	Ranchi	12,046	224	204	428	1848	1734	3582	108	.....	10.42
Singbloom	88	Chybasa	4,423	25	21	46	618	477	1095	104	.....	21.15
Manbloom	89	Parulia	5,600	90	90	180	1580	1580	3160	100	.....	10.13
TOTAL			23,11,625	24,010	20,660	43,298	10,63	8,92	19,50	119	.....	16.30

**ANNUAL FORM NO. II.—Deaths registered in the Districts of the Bengal Province during the year 1878.**

	2	3	4	5	6	7	8	9						
Number.	DISTRICTS.	Population according to census of 1872.	Area in square miles.	Average population per square mile.	NUMBER OF DEATHS REGISTERED.			Number of males died to every 100 deaths of females.	RATIO OF DEATHS PER 1,000 OF POPULATION.			MEAN RATIO OF DEATHS PER 1,000 DURING PREVIOUS FIVE YEARS.		
					Male.	Female.	Total.		Male.	Female.	Total.	Male.	Female.	Total.
Burdwan Division.														
1	Burdwan ...	2,027,149	3,531.53	575	21,207	18,153	39,360	110	21.36	17.64	19.51	13.23	9.02	11.50
2	Bankoora ...	509,802	1,122.67	373	6,705	5,864	12,569	115	22.06	21.94	23.79	10.61	9.87	9.99
3	Beelbhoom ...	699,576	1,314	529	9,162	8,091	17,253	113	27.21	22.26	24.66	23.73	18.47	20.54
4	Madnapore ...	2,516,779	5,004	499	24,384	19,096	43,480	122	19.36	15.48	17.40	11.38	8.93	10.26
5	Hogdly ...	405,780	438	828	4,883	4,454	9,337	169	28.21	23.47	25.73	10.08	13.68	16.24
6	Serampore ...	393,864	362	1,118	4,834	3,848	8,682	124	27.02	19.38	23.15	15.44	10.49	12.92
7	Howrah ...	731,057	639	1,144	7,837	5,778	13,615	136	21.99	15.41	18.62	10.11	10.68	13.33
Presidency Division.														
8	24-Pergunnahs, exclusive of Suburbs of Calcutta ...	1,877,351	2,706.73	678	21,906	10,355	32,261	134	22.84	17.81	20.38	20.89	20.59	18.74
	Suburbs of Calcutta ...	257,140	23.37	11,003	9,787	7,427	17,214	132	61.80	69.97	69.94	54.21	44.07	51.57
	Total	2,134,500	2,730.10	765	31,693	23,785	55,478	133	28.54	23.21	23.99	23.95	19.33	21.73
9	Nuddea ...	1,816,135	3,424	530	24,906	19,485	44,391	125	28.45	21.22	24.72	17.66	13.21	15.57
10	Jessore ...	2,075,021	3,664	567	25,106	19,831	44,937	126	33.84	19.34	21.65	19.68	15.20	16.92
11	Moorsheadabad ...	1,319,022	2,144.19	554	18,812	15,086	33,898	125	20.22	21.36	25.11	22.16	16.22	19.05
Rajshahy and Comch Behar Division.														
12	Dinapore ...	1,501,924	4,126	364	21,483	14,924	36,406	143	27.53	20.57	24.17	15.84	11.97	13.63
13	Rajshahy ...	1,310,729	2,234	586	10,696	11,698	22,394	143	25.64	17.71	21.65	16.07	10.95	13.49
14	Rungpore ...	2,140,947	3,476	618	18,385	12,923	31,308	163	16.78	12.15	14.51	8.67	5.67	7.26
15	Bogra ...	689,467	1,501	459	6,055	4,945	11,000	141	19.99	14.76	17.40	14.60	11.21	13.92
16	Palna ...	1,211,594	1,978	611	7,861	6,141	14,002	128	13.04	10.08	11.55	14.10	10.38	12.25
17	Darjeeling ...	94,712	1,234	76	989	687	1,676	168	18.64	14.09	16.44	15.03	11.73	13.53
18	Jalpaigore ...	418,665	2,066	144	6,071	3,838	9,909	132	25.38	10.02	21.27	9.70	7.35	8.57
Dacca Division.														
19	Dacca ...	1,853,897	2,598.72	639	18,045	14,792	32,837	122	19.91	15.80	17.71	16.35	12.34	14.30
20	Farrukpore ...	1,515,821	2,366	640	10,966	7,705	18,671	143	14.75	9.97	12.31	11.27	8.06	9.64
21	Rajshahi ...	1,923,037	3,533.34	520	9,083	6,841	15,924	133	9.15	7.34	8.28	15.05	10.98	12.56
22	Mymensing ...	2,347,194	6,291.25	373	12,440	8,815	21,255	141	10.18	7.89	9.05	16.63	7.65	9.11
23	Tippurah ...	1,410,229	2,636	550	8,416	6,153	14,569	137	11.61	8.86	10.26	8.11	6.97	7.37
Chittagong Division.														
24	Chittagong ...	1,044,283	2,545	450	7,423	5,396	12,819	137	14.94	9.97	12.28	19.31	11.07	16.37
25	Noakhali ...	912,765	1,847	493	5,254	4,206	9,460	122	11.44	9.46	10.46	20.03	17.37	18.71
Patna Division.														
26	Patna ...	1,350,684	2,101	712	21,093	19,017	40,110	111	27.68	23.83	25.71	14.63	12.48	13.53
27	Gia ...	1,949,750	4,718	413	17,003	14,525	31,528	123	18.76	14.58	16.63	13.04	10.28	11.03
28	Shahabad ...	1,723,974	4,385	593	14,178	10,613	24,791	147	19.97	11.94	14.38	11.80	8.83	10.94
29	Mozaffarpore ...	2,246,433	2,969	756	16,784	12,397	29,181	135	15.14	10.90	12.98	8.01	5.62	6.75
30	Darbhanga ...	2,220,650	3,374	658	17,799	11,014	28,813	153	15.79	10.62	13.24	7.36	5.14	6.26
31	Saran ...	2,063,860	2,654	777	13,791	9,961	23,752	138	13.83	9.33	11.50	10.84	6.96	8.84
32	Chumpran ...	1,410,815	3,531	408	10,282	7,549	17,831	130	19.04	10.73	12.37	7.90	5.81	6.88
Bhagulpore Division.														
33	Monkhyr ...	1,412,980	3,914	463	18,651	15,232	33,883	122	20.79	16.63	18.68	13.16	10.00	11.53
34	Bhagulpore ...	1,829,290	4,327	422	18,866	14,351	33,217	131	20.55	15.76	18.17	11.05	8.16	11.10
35	Purneah ...	1,714,795	4,067	345	24,460	18,368	42,828	133	29.01	21.90	24.07	13.13	9.63	11.42
36	Madhab ...	976,428	1,813	373	9,616	6,496	16,112	148	20.04	18.81	23.81	22.67	15.45	18.94
37	Sonthal Pergunnahs ...	1,260,297	5,488	229	8,915	6,488	15,403	137	14.15	10.30	12.23	11.24	8.76	10.00
Orissa Division.														
38	Cuttack ...	1,494,794	3,515	425	20,059	10,586	40,405	107	28.89	21.38	27.09	18.22	15.07	16.91
39	Pooree ...	769,674	2,160	360	11,731	10,648	22,379	110	30.12	28.00	29.07	15.40	13.94	14.73
40	Balasore ...	770,232	2,068	372	10,798	9,519	20,397	113	29.45	24.33	26.36	16.89	13.99	15.41
Chota Nagpore Division.														
41	Hazaribagh ...	771,875	7,021	109	7,900	5,540	13,440	142	19.30	14.78	17.41	11.38	9.63	10.54
42	Lohardugga ...	1,237,122	12,044	103	10,169	13,333	23,492	121	26.99	21.65	23.83	14.34	11.98	13.05
43	Singbhoom ...	406,805	4,523.37	89	3,069	3,693	7,022	131	19.58	14.94	17.26	14.19	11.31	12.75
44	Manbhoom ...	995,670	4,025	202	5,730	4,018	9,748	142	11.43	8.12	9.79	9.44	6.87	8.00
TOTAL FOR THE PROVINCE.		59,998,455	144,965.17	413	508,283	466,803	1,064,116	128	20.00	15.47	17.73	18.76	10.45	12.11

**ANNUAL FORM No. III.—Deaths registered in the Districts of the Bengal Province during each month of the year 1878.**

1	2	3												4
Number.		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	TOTAL DEATHS REGISTERED DURING THE YEAR.
<b>Burdwan Division.</b>														
1	Burdwan ... ..	3,331	2,494	3,453	3,161	2,149	2,254	1,996	1,845	2,999	3,657	5,818	6,267	39,360
2	Bankura ... ..	885	722	1,185	1,154	868	830	770	633	907	1,100	1,320	1,231	12,029
3	Boorhoom ... ..	1,719	1,217	1,827	1,590	1,095	1,079	845	933	1,179	1,281	2,254	2,271	17,255
4	Midnapore ... ..	5,212	4,189	5,383	4,712	3,273	2,083	2,567	2,844	2,526	3,870	3,662	4,360	44,230
5	Hoochly ... ..	1,128	767	815	824	574	431	403	612	808	892	933	1,061	9,337
6	Serampore ... ..	847	654	739	745	442	305	368	609	830	910	1,003	1,217	8,728
7	Howrah ... ..	1,383	1,179	1,551	1,228	849	862	777	792	847	901	1,256	1,902	13,615
<b>Presidency Division.</b>														
8	24-Portunahs, exclusive of Suburbs of Calcutta ... ..	4,673	3,424	4,346	3,663	2,375	2,143	2,013	2,238	2,481	3,048	3,367	4,603	33,264
	Suburbs of Calcutta ... ..	1,734	1,173	1,620	1,402	983	807	773	1,151	1,145	1,477	2,297	2,746	17,214
	<b>Total</b> ... ..	<b>6,407</b>	<b>4,597</b>	<b>5,966</b>	<b>5,065</b>	<b>3,358</b>	<b>2,950</b>	<b>2,786</b>	<b>3,389</b>	<b>3,626</b>	<b>4,525</b>	<b>5,664</b>	<b>7,349</b>	<b>50,478</b>
9	Nuddea ... ..	4,705	3,157	4,640	4,304	2,978	2,551	2,265	2,437	2,060	3,367	4,395	7,132	44,881
10	Jessore ... ..	8,800	3,818	4,014	3,670	2,982	2,114	2,074	2,206	2,400	2,891	4,098	5,661	44,937
11	Moochedabad ... ..	3,224	2,252	3,232	3,060	2,025	1,882	1,671	2,307	2,060	2,701	3,907	4,887	33,898
<b>Rajshakya and Cooch Behar Division.</b>														
12	Dinapore ... ..	4,287	3,354	3,609	3,216	3,023	2,637	2,542	2,601	2,497	2,495	2,708	3,103	26,363
13	Rajshakya ... ..	3,243	2,296	2,300	2,630	2,084	1,985	1,911	2,209	2,329	2,020	2,640	2,776	22,363
14	Lunkpore ... ..	3,667	3,027	3,380	3,448	2,850	2,012	1,625	1,637	1,635	1,984	2,445	3,646	31,208
15	Bogra ... ..	1,349	1,070	1,134	1,285	796	806	517	787	698	785	1,020	1,837	11,900
16	Fatma ... ..	2,387	1,338	1,253	1,805	1,270	821	700	781	634	793	961	1,269	14,009
17	Darjeeling ... ..	108	95	94	93	190	239	240	100	83	70	86	95	1,678
18	Julpore ... ..	577	768	851	954	1,090	1,122	867	651	462	421	430	480	8,909
<b>Dacca Division.</b>														
19	Dacca ... ..	4,677	2,643	2,647	3,250	2,635	2,006	1,806	1,895	1,851	2,254	2,971	4,107	32,537
20	Farruckpore ... ..	3,035	1,943	2,000	1,968	1,335	1,160	938	1,001	977	1,131	1,402	1,881	18,071
21	Backorungo ... ..	1,341	1,170	1,840	1,831	1,769	1,271	1,005	936	811	1,023	1,263	1,644	16,924
22	Mymensing ... ..	2,830	2,006	1,757	1,780	2,076	1,095	1,486	1,217	1,220	1,387	1,028	1,343	21,255
23	T. M. ... ..	1,016	1,495	1,691	1,400	1,024	1,015	915	978	893	1,085	1,016	1,443	14,069
<b>Chittagong Division.</b>														
24	Chittagong ... ..	1,324	904	1,066	847	658	1,010	1,198	1,286	986	1,155	1,001	1,104	12,619
25	Noakhali ... ..	941	653	677	737	846	766	900	837	686	667	755	950	9,550
<b>Patna Division.</b>														
26	Patna ... ..	2,156	1,936	2,554	3,522	3,091	4,440	3,373	4,628	4,632	5,977	5,808	2,311	40,110
27	Gya ... ..	1,228	1,616	2,507	2,445	2,008	3,329	2,990	4,101	3,743	3,151	2,379	2,175	32,428
28	Shahabad ... ..	1,264	1,189	1,269	1,774	1,473	2,593	2,333	2,904	2,674	2,679	2,403	2,203	24,793
29	Muzafferpore ... ..	1,680	1,648	3,003	2,030	2,813	5,080	2,188	2,807	2,155	2,063	2,777	2,129	29,131
30	Durbhanga ... ..	1,049	1,716	2,081	3,466	3,698	3,082	2,327	2,064	2,432	2,285	2,388	2,223	29,413
31	Saran ... ..	1,247	1,124	1,808	1,721	1,329	1,699	1,498	2,336	3,021	2,078	2,015	2,378	23,753
32	Chumpanun ... ..	1,513	1,227	1,608	1,848	1,719	1,795	1,369	1,481	1,277	1,197	1,493	1,429	17,831
<b>Bhagulpore Division.</b>														
33	Monkhyr ... ..	2,304	1,955	3,006	4,009	3,320	3,547	3,180	2,670	2,658	2,962	3,010	2,485	33,883
34	Bhagulpore ... ..	2,213	1,744	4,061	6,733	3,648	2,614	1,932	2,311	2,167	1,722	2,058	2,044	33,187
35	Purneah ... ..	3,702	3,248	4,128	7,308	4,913	2,609	2,109	2,267	2,089	2,489	3,531	3,847	42,838
36	Maldah ... ..	3,071	1,210	1,167	1,261	1,017	1,125	823	1,057	1,112	1,460	1,851	1,072	16,112
37	Sonthal Pergunnahs ... ..	1,034	700	1,087	2,014	1,514	1,409	1,368	1,603	1,196	1,083	1,179	1,261	15,403
<b>Orissa Division.</b>														
38	Cuttack ... ..	3,326	2,945	3,424	3,270	3,403	3,436	3,397	3,271	3,515	3,971	3,762	4,036	40,466
39	Poorce ... ..	1,469	903	1,581	1,388	2,895	3,433	2,798	1,879	1,268	1,335	2,036	1,894	22,379
40	Balasore ... ..	1,899	1,466	1,487	1,430	1,227	1,427	1,607	1,255	1,201	1,399	2,360	3,859	29,307
<b>Chota Nagpore Division.</b>														
41	Hazaribagh ... ..	888	754	1,021	1,060	880	1,583	1,500	2,067	1,599	863	672	585	13,440
42	Lohardugga ... ..	2,043	1,917	2,354	2,377	2,315	2,903	3,444	3,176	3,347	2,460	2,202	1,824	29,402
43	Singbhoom ... ..	608	567	729	707	583	890	543	659	587	604	471	698	7,023
44	Maubhoom ... ..	848	798	1,119	1,192	954	1,053	793	691	697	494	525	726	9,748
<b>TOTAL FOR THE PROVINCE...</b>		<b>102,640</b>	<b>76,501</b>	<b>97,087</b>	<b>105,915</b>	<b>85,208</b>	<b>82,548</b>	<b>70,668</b>	<b>78,486</b>	<b>77,978</b>	<b>80,114</b>	<b>96,192</b>	<b>110,581</b>	<b>10,84,116</b>
<b>RATIO OF DEATHS PER 1,000 IN EACH MONTH.</b>		<b>1.71</b>	<b>1.37</b>	<b>1.61</b>	<b>1.76</b>	<b>1.42</b>	<b>1.37</b>	<b>1.17</b>	<b>1.30</b>	<b>1.29</b>	<b>1.33</b>	<b>1.60</b>	<b>1.84</b>	<b>17.73</b>



**ANNUAL FORM No. IV.—Deaths registered according to Age in the Districts of the Bengal Province during the year 1878.**

1	2	3		4		5		6		7		8		9		10		11	
Number.	Districts.	Under 1 year.		1 and under 6 years.		6 and under 12 years.		12 and under 20 years.		20 and under 30 years.		30 and under 40 years.		40 and under 50 years.		50 and under 60 years.		60 years and upwards.	
		Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Burdwan Division.																			
1	Burdwan	1,405	1,140	2,018	2,022	1,840	1,584	2,050	1,701	3,381	2,715	3,217	3,210	2,739	1,914	1,949	1,788	2,094	3,10
2	Bankura	1,290	1,101	792	817	501	484	569	480	719	573	732	616	630	420	637	487	946	1,0
3	Bochbhum	1,241	1,013	874	992	971	837	814	629	1,168	1,035	1,158	950	1,110	760	734	687	1,092	1,0
4	Midnapore	2,158	1,881	2,559	2,445	1,942	1,641	2,403	1,653	3,176	2,408	3,261	2,316	2,089	1,881	2,439	1,939	3,506	3,7
5	Hoochly	552	442	472	418	301	267	314	357	792	721	673	520	600	509	518	437	671	2
6	Serampore	450	301	610	430	308	336	430	385	725	589	676	444	626	406	452	351	558	5
7	Howrah	741	499	876	732	671	603	888	648	1,227	867	939	634	814	636	680	578	978	6
Presidency Division.																			
8	24 Pargunnahs, exclusive of Suburbs of Calcutta.	1,031	1,485	2,827	2,380	2,340	1,674	1,977	1,600	3,023	2,442	3,019	1,967	2,465	1,547	1,820	1,299	2,505	2,0
	Suburbs of Calcutta	1,024	890	1,030	1,014	639	480	790	675	2,007	1,180	1,973	917	973	640	708	664	710	1,0
	Total	2,055	2,391	3,856	3,394	2,978	2,085	2,767	2,184	5,030	3,622	4,992	2,884	3,478	2,187	2,528	1,963	3,215	3,0
9	Nuddon	2,567	2,071	4,108	3,370	3,510	2,362	2,111	1,468	2,734	2,235	2,710	1,880	2,648	1,658	1,909	1,652	2,800	2,7
10	Jessore	2,002	1,752	4,123	3,380	2,687	1,973	1,872	1,686	2,789	2,290	3,011	2,040	2,860	1,903	2,326	1,649	3,530	2,9
11	Moorsheadabad	2,239	1,761	2,782	2,431	2,210	1,391	1,747	1,040	2,326	1,868	1,997	1,415	1,898	1,411	1,412	1,297	2,101	2,1
Rajahmundry and Cochin Behar Division.																			
12	Dinapore	1,812	1,490	1,617	1,401	1,033	1,050	2,041	1,534	3,760	2,444	3,886	2,105	3,093	1,773	1,856	1,315	2,654	1,6
13	Rajahmundry	908	752	1,898	1,836	2,050	1,231	1,644	987	2,653	1,921	2,860	1,975	2,279	1,122	1,182	884	1,202	1,0
14	Rangpoore	1,413	919	1,824	1,935	1,446	913	1,700	1,263	2,671	1,311	3,236	2,182	2,712	1,710	1,806	1,263	1,917	1,0
15	Bogra	698	453	654	540	627	346	650	476	981	908	1,333	789	950	488	631	411	712	8
16	Patna	473	382	1,075	962	853	620	602	532	1,049	928	1,145	764	972	558	682	554	972	6
17	Darjeeling	61	59	118	67	132	87	100	69	123	68	169	109	76	32	72	49	46	8
18	Jalpigoree	524	362	517	393	346	288	395	318	791	683	772	475	610	382	662	476	510	1
Dacca Division.																			
19	Dacca	2,812	2,243	2,865	2,505	1,363	1,068	1,123	1,050	1,800	1,871	2,095	1,182	1,878	1,107	1,510	1,071	2,620	2,1
20	Furzedpore	1,029	833	1,604	1,212	927	588	765	652	1,347	1,118	1,627	936	1,355	637	990	601	1,640	1,2
21	Baekergunge	1,132	870	1,272	1,141	700	524	684	658	1,074	963	1,104	604	915	557	844	638	1,216	1,0
22	Mymensingh	1,166	800	1,362	1,290	1,063	717	1,320	1,087	1,702	1,344	1,861	1,017	1,510	807	1,063	763	1,390	1,0
23	Tipperah	1,002	713	760	722	636	445	688	675	1,233	1,041	1,086	723	871	489	701	413	1,440	9
Chittagong Division.																			
24	Chittagong	676	543	860	744	676	418	623	423	900	718	1,070	633	953	559	767	510	803	6
25	Noakhali	776	600	704	673	409	353	324	340	624	665	666	497	525	345	479	260	792	6
Patna Division.																			
26	Patna	6,162	5,081	4,137	3,406	1,271	941	810	744	1,608	1,527	1,677	1,159	1,573	1,230	1,652	1,620	2,216	2,0
27	Oya	3,577	3,154	2,088	2,360	1,215	703	920	785	1,772	1,509	1,710	1,200	1,433	1,301	1,504	1,370	1,804	1,0
28	Sinhahal	2,222	1,613	2,057	1,575	1,288	813	1,201	762	1,757	1,187	1,664	1,077	1,375	1,003	1,325	1,005	1,389	1,0
29	Mozufferpore	2,540	1,922	2,732	2,158	1,261	707	1,133	607	2,554	1,478	1,875	1,112	1,602	1,123	1,625	1,459	1,413	1,0
30	Durbhanga	1,541	1,117	2,223	1,715	1,063	1,118	1,708	961	3,209	1,705	2,567	1,560	1,854	1,139	1,479	1,133	1,363	1,0
31	Saran	1,353	905	1,007	1,200	939	604	687	682	1,752	1,088	1,687	1,084	1,821	1,210	1,541	1,264	2,074	1,0
32	Chumpanin	1,374	991	1,266	924	607	413	680	480	1,455	1,007	1,305	937	1,129	768	1,078	672	1,322	1,0
Rahulpore Division.																			
33	Monghyr	3,735	3,028	3,790	3,009	1,613	1,106	1,105	763	1,946	1,448	1,620	1,174	1,663	1,207	1,701	1,330	1,488	1,0
34	Rahulpore	1,869	1,532	2,730	2,374	1,789	1,127	1,440	929	3,619	2,550	2,711	1,785	1,801	1,23	1,452	1,298	1,330	1,0
35	Purneah	1,991	1,499	2,640	1,966	2,670	1,746	2,037	1,637	4,505	3,596	3,738	2,425	2,532	1,720	1,886	1,667	1,916	1,0
36	Maldah	908	430	1,279	978	1,139	699	1,165	670	1,400	845	1,310	760	1,001	594	677	517	1,087	1,0
37	Southern Pargunnahs	1,016	792	1,403	1,310	893	631	857	617	1,243	811	885	638	830	436	768	689	938	1,0
Orissa Division.																			
38	Cuttack	4,850	4,472	3,652	3,336	1,682	1,423	1,160	1,200	1,063	2,186	1,836	1,482	1,606	1,078	1,511	1,193	2,071	2,1
39	Pooree	1,807	1,754	1,181	1,430	985	761	890	950	1,510	1,583	1,446	1,082	1,214	751	1,000	970	1,194	1,0
40	Balasore	2,627	2,190	1,601	1,648	712	611	608	636	1,112	1,118	1,170	836	947	670	830	613	1,273	1,0
Chota Nagpore Division.																			
41	Hazaribagh	1,091	807	1,147	780	582	350	544	360	1,102	726	1,046	641	806	510	747	604	785	1,0
42	Lohardugga	3,538	2,818	2,040	2,409	1,147	803	1,082	808	1,604	1,806	1,829	1,099	1,371	951	1,467	1,454	1,381	1,0
43	Singbhoom	571	472	635	573	200	216	323	187	399	277	424	255	473	266	370	341	507	1,0
44	Manbhoom	574	483	612	438	441	296	330	360	740	498	796	428	638	314	610	435	770	1,0
TOTAL FOR THE PROVINCE		76,496	60,244	80,635	69,620	53,473	37,338	48,715	36,023	79,656	61,907	70,080	50,817	65,030	41,987	51,038	41,073	68,403	68,1
RATIO PER 1,000 LIVING																			
As the census tables of 1872 do not give the population according to age, these ratios cannot be furnished.																			

ANNUAL FORM No. V.—Deaths registered according to Class in the Districts of the Bengal Province during the year 1878.

DISTRICTS.	POPULATION ACCORDING TO CENSUS OF 1872.					NUMBER OF DEATHS REGISTERED.					RATIO OF DEATHS PER 1,000 OF POPULATION.							
	Christians.	Hindus.	Mahomedans.	Buddhists.	Other classes.*	Total.	Christians.	Hindus.	Mahomedans.	Buddhists.	Other classes.	Total.	Christians.	Hindus.	Mahomedans.	Buddhists.	Other classes.	Total.
Burdwan Division.																		
Burdwan	925	1,673,531	340,295	.....	0,469	2,027,140	7	33,350	6,068	.....	13	30,800	7/56	19/80	17/78	.....	1/31	19/41
Bankura	70	401,558	13,728	.....	25,416	510,902	1	11,978	376	.....	275	12,629	14/23	24/36	27/25	.....	10/81	23/79
Beerbhoom	217	581,310	111,694	.....	6,925	699,976	3	14,755	2,471	.....	55	17,353	8/99	26/33	22/18	.....	7/94	24/94
Midnapore	616	2,288,061	157,257	.....	99,246	2,545,170	16	24,558	2,693	.....	3,021	44,290	24/39	16/85	17/12	.....	30/46	17/40
Hooahly	388	207,555	91,773	.....	64	362,780	7	6,002	2,128	.....	.....	9,537	18/94	25/70	25/61	.....	.....	25/73
Serampore	602	324,987	68,257	.....	48	393,864	14	7,357	1,355	.....	.....	9,728	23/26	22/23	19/43	.....	.....	22/18
Howrah	1,594	603,800	135,261	.....	492	731,067	61	10,738	2,793	.....	.....	13,616	40/15	18/11	20/64	.....	.....	18/62
Presidency Division.																		
24 Pergunnahs, exclusive of Suburbs of Calcutta.	8,871	1,104,443	792,911	16	1,011	1,877,361	162	23,503	14,500	.....	.....	58,261	18/26	21/28	19/14	.....	.....	20/38
Suburbs of Calcutta...	3,534	152,751	100,610	140	114	227,140	236	10,453	6,629	.....	.....	17,214	66/68	68/44	64/89	.....	.....	66/94
Total	12,405	1,257,193	893,521	156	1,125	2,104,500	392	33,956	21,128	.....	.....	55,478	31/60	27/61	24/48	.....	.....	25/29
Nudda	5,977	823,251	964,227	.....	1,680	1,815,135	112	20,496	24,283	.....	.....	44,881	18/73	24/86	24/67	.....	.....	24/72
Tessore	1,132	915,413	1,151,930	.....	6,530	2,075,021	20	19,773	25,110	.....	84	44,337	17/31	21/60	21/79	.....	6/20	21/66
Moorsheadabad...	799	730,644	695,103	.....	16,376	1,510,923	8	19,607	14,272	.....	11	33,898	10/01	26/82	23/70	.....	6/7	25/11
Rajahmundry and Cochin Dehar Division.																		
Dinnagepore	271	702,235	798,215	295	5,908	1,501,924	2	10,745	19,420	.....	139	36,906	7/98	23/84	21/48	.....	23/52	24/17
Rajahmundry	103	288,465	1,016,384	10	5,747	1,310,729	...	5,738	22,379	.....	263	28,382	...	19/80	22/01	...	45/66	21/65
Kannepore	86	637,298	1,291,445	69	1,075	2,110,722	...	12,401	18,407	...	...	31,208	...	14/83	14/25	...	...	14/51
Pogara	99	139,614	554,020	...	2,181	699,407	...	2,491	9,383	...	18	11,900	...	10/12	16/80	...	7/33	17/40
Palma	84	361,314	837,229	...	2,363	1,211,594	1	4,609	9,855	...	17	13,062	10/20	11/34	11/66	...	6/75	11/85
Darjelling	858	69,831	6,248	1,368	16,700	19,712	11	1,203	67	156	129	1,576	10/74	17/37	15/48	69/41	7/72	10/64
Jalpigore	36	182,375	144,980	8	680	327,095	1	4,213	3,004	2	208	7,518	27/77	23/26	21/13	250/00	354/93	23/78
Dacca Division.																		
Dacca	7,844	794,144	1,050,680	.....	1,229	1,563,807	144	14,838	17,835	.....	.....	32,387	18/35	18/70	10/67	.....	...	17/71
Furzedpore	2,212	612,656	867,774	.....	2,879	1,515,821	16	8,454	10,184	.....	18	14,671	6/78	13/14	11/73	.....	6/25	13/31
Backorkunge	3,513	634,841	1,280,346	.....	4,317	1,923,687	11	5,187	10,714	.....	12	15,924	5/13	8/17	8/56	.....	2/79	6/88
Myanmuni	84	810,880	1,277,082	.....	12,298	2,347,108	...	4,136	12,965	.....	144	21,255	...	9/93	8/53	...	11/78	9/65
Tipperah	141	497,583	921,437	.....	63	1,419,229	...	6,024	8,645	.....	.....	14,569	...	11/00	9/38	...	...	10/26
Chittagong Division.																		
Chittagong	1,084	275,145	537,500	20,465	.....	1,043,248	17	3,080	9,111	605	.....	12,810	15/68	11/21	12/35	20/63	...	13/28
Nakholli	557	248,816	605,594	773	16	912,755	2	2,461	7,079	7	.....	9,550	3/50	9/89	10/68	9/05	...	10/46
Prana Division.																		
Palma	2,700	1,343,291	192,999	197	462	1,559,038	41	31,822	5,214	.....	.....	40,110	16/20	25/54	40/60	.....	...	25/71
Gya	203	1,729,909	191,332	...	316	1,919,750	...	28,480	3,948	.....	.....	32,428	...	18/40	18/40	...	...	18/40
Shahabad	461	1,690,043	132,071	2	197	1,723,074	11	22,612	2,270	.....	.....	24,793	23/66	14/15	17/10	...	...	24/36
Mozufforpore	424	1,065,076	279,961	...	70	2,216,433	3	26,143	3,605	.....	.....	29,181	7/07	13/29	10/84	...	...	12/38
Durbinpore	292	1,014,333	275,961	...	324	2,220,450	4	26,615	2,804	.....	.....	29,413	10/62	13/60	10/80	...	...	13/24
Sarun	207	1,857,018	241,500	1	14	2,069,860	1	21,269	2,512	.....	.....	25,758	4/83	11/64	10/52	...	...	11/50
Chumpan	1,307	1,540,264	190,237	.....	7	1,440,815	68	15,494	2,279	.....	.....	17,831	41/37	12/49	11/43	...	...	12/37
Bhagulpore Division.																		
Monghyr	1,755	1,012,033	182,200	34	15,095	1,813,966	15	30,431	5,338	1	809	38,583	8/54	18/80	18/31	29/41	6/19	18/68
Bhagulpore	682	1,039,949	169,426	19	16,504	1,826,390	8	30,093	2,822	...	269	33,187	15/68	18/34	16/85	...	10/43	18/17
Purneah	408	1,022,060	690,149	.....	2,284	1,714,705	3	27,043	14,890	...	2	42,888	7/44	27/34	21/56	...	8/9	24/67
Malda	43	356,398	319,890	.....	8,165	676,420	...	8,891	7,131	...	70	16,112	...	24/65	23/67	...	7/61	23/81
Sonthal Pergunnahs...	892	650,210	79,786	.....	624,89	1,239,387	6	8,670	1,400	.....	6,229	15,493	12/75	13/33	18/78	...	9/88	15/28
Orissa Division.																		
Cuttack	2,314	1,430,040	40,013	19	22,308	1,491,734	38	30,640	801	...	4	40,465	16/32	27/72	20/60	...	1/17	27/69
Pooree	876	730,636	11,660	8	17,968	760,674	2	21,065	235	...	507	24,379	8/47	20/25	20/28	...	28/37	20/37
Balaore...	630	738,398	18,878	1	12,427	770,232	6	10,620	429	...	313	20,307	11/82	26/44	22/72	...	27/60	20/36
Chota Nagpore Division.																		
Hazaribagh	1,873	647,904	72,338	.....	40,973	771,875	1	11,840	1,279	...	520	13,440	6/3	18/27	17/68	...	6/40	17/41
Lohardugga	12,781	741,952	68,211	.....	424,179	1,237,123	308	13,405	1,624	...	13,595	29,192	29/79	18/74	27/80	...	32/65	23/83
Singhbhoom	716	206,309	2,344	.....	197,269	406,405	19	2,402	42	...	1,150	7,022	21/33	17/38	17/91	...	27/68	17/28
Maubhoom	691	827,036	33,622	.....	133,421	965,370	12	7,420	879	...	1,928	9,748	20/30	8/97	11/27	...	14/46	9/70
TOTAL FOR THE PROVINCE	99,171	39,729,590	19,423,807	32,414	1,632,413	59,007,765	1,444	710,704	318,850	731	40,886	1,062,725	20/87	18/35	16/41	23/18	18/60	17/73

\* Aboriginal tribes chiefly; also some semi-aboriginal tribes and mixed and impure tribes among Hindus who are not recognised as Hindus.

† Exclusive of the Western Duars, of which the Class population is not given in the census tables of 1872.

OFFICE OF THE SANITARY COMM. FOR BENGAL,  
The 2nd April 1879.

J. M. COATES, M.D.,  
Sanitary Commissioner for Bengal.

## ANNUAL FORM No. VI.—Deaths registered from different causes in the

1	2	3	4	5	6	7
Number.	DISTRICTS AND TOWNS.	Population according to census of 1872.	Cholera.	Small-pox.	Fevers.	Bowel complaints.
	<b>DISTRICTS.</b>					
	<i>Burdwan Division.</i>					
1	Burdwan ... ..	1,002,305	2,407	283	29,009	1,378
2	Bankoora ... ..	403,061	316	141	7,751	572
3	Beerbhoom ... ..	690,075	418	30	12,072	171
4	Midnapore ... ..	2,474,129	2,441	507	50,278	3,912
5	Hoochly ... ..	312,380	336	39	5,412	637
6	Serampore ... ..	356,092	270	40	4,565	684
7	Howrah ... ..	618,738	1,262	150	5,562	1,768
	<i>Presidency Division.</i>					
8	24-Pergunnahs ... ..	1,689,656	3,742	97	25,020	1,118
9	Nudda ... ..	1,750,750	6,005	185	32,054	1,319
10	Jessore ... ..	2,000,809	6,073	301	35,562	374
11	Moorsheadabad ... ..	1,253,974	1,034	14	27,395	304
	<i>Rajshahye and Cooch Behar Division.</i>					
12	Dinagopore ... ..	1,487,319	1,123	30	51,828	347
13	Rajshahye ... ..	1,284,494	622	35	25,559	84
14	Rungpore ... ..	2,135,127	3,480	67	23,937	842
15	Hogra ... ..	683,686	720	13	10,010	84
16	Pubna ... ..	1,176,991	1,057	32	10,309	340
17	Darjeeling ... ..	91,555	265	10	805	143
18	Julpigoree ... ..	411,480	933	18	6,938	81
	<i>Dacca Division.</i>					
19	Dacca ... ..	1,762,232	3,174	125	19,389	2,000
20	Furzedpore ... ..	1,606,024	2,456	91	13,473	375
21	Hackergunge ... ..	1,800,709	2,590	419	6,024	628
22	Mymensing ... ..	2,303,005	2,469	623	13,238	616
23	Tippurah ... ..	1,390,909	1,451	142	10,061	324
	<i>Chittagong Division.</i>					
24	Chittagong ... ..	1,022,670	185	3	9,331	674
25	Noakhalli ... ..	902,692	209	252	7,687	753
	<i>Patna Division.</i>					
26	Patna ... ..	1,295,400	704	654	10,584	2,260
27	Gya ... ..	1,672,340	810	726	22,562	702
28	Shahabad ... ..	1,632,763	1,693	745	17,084	723
29	Mozufforpore ... ..	2,157,360	292	371	15,755	3,424
30	Durbhunga ... ..	2,173,200	1,874	288	18,319	3,103
31	Saran ... ..	1,093,059	677	154	8,569	2,802
32	Chumparun ... ..	1,421,107	203	171	11,402	622
	<i>Bhagulpore Division.</i>					
33	Monghyr ... ..	1,720,804	2,146	1,007	23,679	900
34	Bhagulpore ... ..	1,756,612	6,794	304	20,705	750
35	Purneah ... ..	1,698,738	6,570	144	34,287	372
36	Maldah ... ..	663,567	506	43	14,281	61
37	Sonthal Pergunnahs ... ..	1,248,094	1,776	282	11,038	689
	<i>Orissa Division.</i>					
38	Cuttack ... ..	1,422,471	5,551	354	17,737	4,028
39	Pooree ... ..	746,970	7,047	103	5,437	2,140
40	Balasore ... ..	752,622	1,754	363	8,508	4,079
	<i>Chota Nappore Division.</i>					
41	Hazaribagh ... ..	760,825	2,323	150	8,805	803
42	Lohardugga ... ..	1,225,037	397	172	21,257	3,497
43	Singbhoom ... ..	401,782	113	.....	4,232	1,348
44	Manbhoom ... ..	889,474	651	65	6,273	921
	<b>TOTAL OF DISTRICTS</b> ...	<b>57,627,632</b>	<b>86,440</b>	<b>9,840</b>	<b>700,143</b>	<b>52,518</b>
	<b>TOWNS.</b>					
	<i>Burdwan District.</i>					
1	Burdwan ... ..	33,321	137	4	695	280
2	Calna ... ..	27,336	23	3	175	50
3	Sonamookhi ... ..	12,565	10	17	279	7
4	Raneegunge ... ..	19,678	40	88	240	19
5	Jehanabad ... ..	13,409	11	.....	125	11
6	Shambazar ... ..	19,635	.....	85	618	3
	<i>Bankoora District.</i>					
7	Bankoora ... ..	16,794	11	16	174	100
8	Bishanpore ... ..	18,047	11	4	466	19
	<i>Beerbhoom District.</i>					
9	Soori ... ..	9,001	.....	12	151	14

The returns do not give results separately for town and

## Districts and Towns of the Bengal Province during the year 1878.

8					9	10	11							12	
INJURY.					All other causes.	TOTAL DEATHS FROM ALL CAUSES.	RATIO OF DEATHS PER 1,000 OF POPULATION.							Number.	
Male.	Female.	Wounding or accident.	Snake-bite or killed by wild beasts.	Total.			Cholera.	Small-pox.	Fever.	Bowel complaints.	Injury.	All other causes.	For the year.		Mean of previous four years.
35	27	103	229	394	1,052	36,112	1'31	1'14	15'72	72	20	86	18'09	10'79	1
3	2	50	82	137	2,475	11,392	1'33	1'28	15'02	115	27	499	22'90	9'10	2
7	5	30	60	111	3,275	17,007	1'04	1'04	18'77	24	16	473	24'01	21'18	3
7	11	155	436	603	5,531	41,836	1'19	1'22	12'22	157	24	142	10'80	10'65	4
10	11	39	41	100	602	7,523	1'07	1'12	18'00	203	32	102	24'09	13'45	5
16	10	34	54	114	350	6,324	1'05	1'11	12'81	276	32	98	17'76	11'26	6
23	20	169	156	377	931	10,000	2'03	2'24	8'98	284	60	153	10'35	10'72	7
44	57	566	430	897	1,830	33,594	2'21	1'05	15'34	166	62	108	19'89	20'65	8
81	125	213	714	1,133	3,325	43,001	2'84	1'00	18'21	74	64	188	21'43	17'80	9
64	84	313	384	844	1,548	44,647	2'04	1'14	17'17	18	40	74	21'60	19'49	10
24	31	207	438	700	1,491	30,998	1'83	1'01	21'60	20	55	118	21'78	20'18	11
5	10	192	303	510	2,045	35,893	1'75	1'02	21'30	123	84	137	24'12	15'76	12
24	52	302	395	773	529	27,602	1'48	1'02	19'83	106	69	11	21'42	15'24	13
3	3	168	271	445	1,900	30,700	1'62	1'03	11'22	39	20	89	14'37	7'84	14
10	15	115	254	394	488	11,709	1'05	1'01	14'78	12	67	71	17'27	14'40	15
14	36	165	344	559	555	13,432	1'80	1'02	9'28	28	47	47	11'45	13'40	16
3	5	26	13	47	68	1,419	2'00	1'10	9'77	156	51	63	15'40	18'73	17
3	6	59	59	126	586	8,683	2'20	1'04	10'80	10	30	142	21'09	9'56	18
30	34	122	367	532	5,474	30,604	1'80	1'07	10'04	113	30	310	17'36	11'49	19
13	43	215	813	584	978	18,340	1'61	1'06	9'20	24	58	64	12'17	11'68	20
21	31	437	155	614	2,471	15,679	1'35	1'11	4'72	27	33	120	8'20	13'83	21
5	21	218	374	618	2,420	10,083	1'07	1'27	6'74	37	26	105	8'07	9'95	22
11	7	240	71	329	1,630	13,933	1'04	1'10	7'23	30	29	116	10'01	7'04	23
4	9	356	41	410	1,998	12,511	1'13	1'06	9'02	165	40	105	12'23	17'09	24
7	6	260	60	333	794	9,468	1'29	1'27	8'51	110	36	87	10'51	21'03	25
12	124	528	250	923	6,122	30,256	1'54	1'50	15'11	175	71	472	23'35	12'48	26
28	64	383	245	720	3,705	29,027	1'43	1'39	11'04	87	83	197	15'40	10'78	27
35	50	445	198	663	1,270	22,183	1'03	1'45	10'16	144	40	77	13'58	9'67	28
9	23	478	456	1,071	6,582	27,465	1'13	1'17	7'30	158	45	305	12'74	6'82	29
10	11	282	373	652	3,279	28,106	1'06	1'13	8'03	148	31	130	12'03	6'33	30
25	33	320	125	603	6,000	31,069	1'29	1'07	4'39	143	25	431	10'87	8'07	31
12	30	269	219	530	4,443	17,377	1'14	1'12	8'02	143	37	512	12'22	6'03	32
7	19	294	402	722	2,338	30,892	1'24	1'58	13'75	167	41	133	17'94	11'45	33
1	2	188	206	479	2,746	31,778	1'36	1'17	11'78	143	27	156	18'09	10'93	34
13	27	100	237	476	347	42,006	1'08	1'09	20'18	21	28	114	24'78	32'72	35
4	6	25	166	191	353	15,435	1'70	1'00	21'52	109	24	53	23'26	7'53	36
23	16	89	172	300	1,323	15,308	1'42	1'23	8'84	147	24	100	12'20	11'44	37
50	120	361	301	832	9,441	37,043	1'90	1'24	12'46	283	68	603	26'07	17'40	38
24	54	190	106	374	5,833	20,934	1'43	1'18	7'37	286	50	730	28'02	10'62	39
19	48	160	156	373	4,522	19,647	1'33	1'40	11'88	541	49	600	26'10	16'91	40
17	25	141	93	276	541	12,808	1'05	1'10	11'67	105	30	71	16'05	11'14	41
14	13	321	170	518	3,077	28,989	1'33	1'14	17'37	284	42	251	23'62	12'39	42
30	36	80	98	250	936	6,871	1'23	1'05	10'50	335	62	232	17'10	13'74	43
8	4	64	104	180	1,366	9,469	1'05	1'06	6'24	198	18	137	9'55	8'73	44
825	1,415	6,462	10,084	21,764	110,085	680,810	1'49	1'17	12'14	101	37	191	17'01	12'60	
2	3	7	8	19	154	1,278	1'23	1'12	21'50	832	58	476	30'54	29'05	1
1	1	3	3	10	133	389	1'02	1'10	6'40	182	98	449	14'23	8'45	2
1	1	3	3	8	49	370	1'35	1'35	23'20	55	63	389	29'44	13'37	3
1	1	3	3	3	3	893	2'04	1'40	12'28	197	15	15	20'07	7'28	4
1	1	1	2	4	5	156	1'82	1'05	9'32	188	29	37	11'03	9'02	5
1	1	1	3	4	4	662	1'78	1'78	31'37	116	20	20	37'11	11'13	6
23	1	33	1	24	204	529	1'05	1'05	10'36	598	142	12'14	31'49	25'72	7
1	1	3	1	5	213	708	1'00	1'22	28'26	1'05	27	11'80	30'22	18'47	8
1	1	1	1	1	68	240	1'33	1'33	16'77	1'55	11	7'55	27'33	No data	9

districts for more than the previous four years.

## ANNUAL FORM No. VI.—Deaths registered from different causes in the Districts

1	2	3	4	5	6	7
Number.	DISTRICTS AND TOWNS.	Population according to census of 1873.	Cholera.	Small-pox.	Fever.	Bowel complaints.
	<i>Midnapore District.</i>					
10	Midnapore ... ..	31,491	119	17	531	258
11	Ghatal ... ..	12,447	46	.....	205	81
12	Chunderkona ... ..	14,444	4	.....	476	23
13	Ramjibunpore ... ..	10,668	1	7	102	20
	<i>Hooghly District.</i>					
14	Hooghly ... ..	34,761	106	20	647	332
15	Balagurh ... ..	15,630	29	2	306	10
	<i>Serampore District.</i>					
16	Serampore ... ..	24,440	137	37	1,042	434
17	Baidyabatti ... ..	13,332	57	5	189	88
	<i>Howrah District.</i>					
18	Howrah, including Shibpore, Golabari, and Balli ... ..	97,784	615	118	1,605	698
19	Khanakool ... ..	14,537	1	.....	31	10
	<i>24 Pargunnahs District.</i>					
20	Suburbs of Calcutta ... ..	257,149	2,364	585	7,915	3,042
21	North Suburban Town ... ..	21,127	61	12	487	124
22	South ditto ditto ... ..	65,094	79	11	624	183
23	Rajpore ... ..	10,383	80	5	197	11
24	Angurpara, or South Barrackpore ... ..	24,189	78	23	578	54
25	Nowabgunge, or North ditto ... ..	17,179	20	1	449	92
26	Nyohatli ... ..	10,733	35	3	552	30
27	Russihat ... ..	12,421	57	.....	206	6
28	Baduria ... ..	12,689	23	.....	234	3
	<i>Nudda District.</i>					
29	Kishnaghur ... ..	26,750	117	24	345	65
30	Santipore ... ..	28,636	286	.....	663	17
	<i>Jessore District.</i>					
31	Jessore ... ..	8,162	5	2	228	20
	<i>Moorshedabad District.</i>					
32	Berhampore ... ..	27,280	19	.....	516	52
33	Kandi ... ..	12,016	8	.....	248	15
34	Jungipore ... ..	11,361	9	3	304	0
35	City Moorshedabad ... ..	40,182	78	15	1,320	102
	<i>Dinapore District.</i>					
36	Dinapore ... ..	14,000	14	2	336	16
	<i>Rajahmhy District.</i>					
37	Bauleah ... ..	22,301	51	1	603	41
	<i>Rungpore District.</i>					
38	Rungpore ... ..	14,845	68	2	300	54
	<i>Bogra District.</i>					
39	Bogra ... ..	5,872	10	.....	119	25
	<i>Pubna District.</i>					
40	Pubna ... ..	15,730	21	1	283	8
41	Sorsjgunge ... ..	18,878	11	.....	112	8
	<i>Darjeeling District.</i>					
42	Darjeeling ... ..	3,157	.....	.....	82	56
	<i>Julpigoree District.</i>					
43	Julpigoree ... ..	7,185	15	.....	126	42
	<i>Dacca District.</i>					
44	Dacca ... ..	69,212	167	117	328	228
45	Naraingunge ... ..	10,011	43	.....	43	16
46	Manickgunge ... ..	11,542	21	1	211	13
	<i>Furreedpore District.</i>					
47	Furreedpore ... ..	9,197	23	.....	195	29
	<i>Backergunge District.</i>					
48	Barisal ... ..	13,268	20	9	120	39
	<i>Mymensing District.</i>					
49	Jamalpore ... ..	14,312	72	32	331	24
50	Kishoregunge ... ..	13,637	50	78	212	18
51	Tangail ... ..	16,244	58	1	157	8
	<i>Tipperah District.</i>					
52	Comillah ... ..	12,948	14	4	153	12
53	Brabmanberiah ... ..	15,372	27	.....	174	5
	<i>Chittagong District.</i>					
54	Chittagong ... ..	20,604	8	.....	218	17
	<i>Noakholla District.</i>					
55	Sudharam ... ..	10,063	1	.....	38	2

and Towns of the Bengal Province during the year 1878—continued.

8					9	10	11										12
INJURY.					All other causes.	TOTAL DEATHS FROM ALL CAUSES.	RATIO OF DEATHS PER 1,000 OF POPULATION.										Number.
SUICIDE.		Wounding or accident.	Snake-bite or killed by wild beasts.	Total.			Cholera.	Small-pox.	Fever.	Bowel complaints.	Injury.	All other causes.	FROM ALL CAUSES.				
Male.	Female.												For the year.	Mean of previous four years.			
1	...	4	.....	5	309	1,230	3'77	53	16'80	8'19	1'15	0'81	39'34	29'25	10		
...	...	11	.....	16	82	430	3'09	...	18'46	6'50	1'28	6'58	34'54	no data.	11		
...	...	3	.....	7	25	535	27	...	32'85	1'50	1'48	1'73	37'03	no data.	12		
...	...	...	.....	...	30	250	00	05	17'89	1'87	.....	2'81	23'43	no data.	13		
1	3	10	.....	14	212	1,331	3'04	57	18'61	9'55	1'40	6'09	38'39	29'76	14		
...	1	2	.....	6	68	480	1'85	12	23'41	1'31	3'8	3'71	30'71	20'34	15		
5	...	0	.....	16	314	1,060	5'00	1'61	42'63	17'75	1'65	12'84	81'01	88'25	16		
2	...	2	.....	0	79	423	4'37	22	14'17	6'00	1'45	5'92	81'05	22'15	17		
1	5	30	.....	50	328	3,504	6'28	1'20	17'33	7'13	1'61	3'35	35'83	32'54	18		
...	...	...	.....	...	9	51	06	...	2'13	0'8	.....	0'01	8'50	9'70	19		
10	8	61	.....	85	3,223	17,214	9'10	2'27	30'77	11'82	1'33	12'53	69'94	54'37	20		
...	4	8	.....	14	63	761	2'53	49	20'18	5'13	1'84	2'01	31'54	44'21	21		
1	1	7	.....	17	98	904	1'19	16	9'61	2'01	1'25	1'45	11'00	13'78	22		
...	1	...	.....	1	6	290	7'70	48	18'01	1'05	1'09	57	27'93	30'04	23		
2	1	...	.....	8	16	759	2'75	81	20'50	1'98	1'28	58	28'98	17'88	24		
4	...	8	.....	10	46	633	1'51	05	20'13	0'35	1'10	2'67	36'84	21'71	25		
...	3	5	.....	15	25	660	2'00	17	32'98	1'79	1'49	1'49	39'44	81'30	26		
...	1	5	.....	8	50	320	4'58	...	18'58	0'4	1'02	4'08	26'45	28'61	27		
...	...	2	.....	13	1	274	1'81	...	18'44	0'23	1'02	0'07	21'59	17'53	28		
1	1	13	.....	23	186	703	4'37	89	13'00	2'42	1'85	6'05	25'33	23'16	29		
3	7	...	.....	17	43	1,117	9'88	8'17	33'15	0'89	1'50	6'05	39'00	18'05	30		
...	1	1	.....	2	33	290	01	24	27'06	2'45	1'24	4'04	35'57	no data.	31		
...	...	6	.....	6	47	640	69	...	18'80	1'90	1'20	1'78	23'45	27'34	32		
...	...	1	.....	1	20	301	86	...	20'63	1'24	1'08	2'41	25'04	16'63	33		
...	...	7	.....	8	4	334	79	28	26'75	0'52	1'70	35	29'39	27'94	34		
...	...	4	.....	23	77	1,625	1'68	32	28'71	2'20	0'68	1'60	35'18	32'19	35		
3	...	9	.....	12	43	423	05	13	23'00	1'09	0'82	2'94	28'05	38'63	36		
...	1	8	.....	13	71	780	2'23	04	27'05	1'83	0'58	3'18	84'09	25'08	37		
1	1	6	.....	6	70	508	4'58	13	20'20	3'03	0'53	5'11	84'22	36'83	38		
...	...	4	.....	4	33	191	1'70	...	20'26	4'25	0'68	5'61	32'52	no data.	39		
...	...	7	.....	14	48	375	1'33	00	17'99	0'50	1'80	3'05	23'83	42'10	40		
...	...	...	.....	14	14	145	08	...	5'93	0'43	.....	7'4	7'08	13'94	41		
...	...	2	.....	2	17	167	...	...	23'97	17'73	0'63	5'38	49'73	no data.	42		
...	...	3	.....	3	41	227	2'08	...	17'53	5'84	1'41	5'70	31'50	no data.	43		
...	...	7	.....	12	883	1,735	2'41	1'09	4'73	3'20	1'17	12'75	25'05	20'48	44		
...	3	93	.....	9	93	108	3'04	27	3'04	1'46	0'27	8'52	18'14	21'68	45		
...	2	45	.....	9	45	300	1'81	08	16'28	1'12	0'77	3'80	25'09	40'00	46		
...	1	4	.....	7	77	331	2'50	...	21'20	3'15	0'79	8'37	35'08	no data.	47		
1	...	28	.....	23	28	248	1'50	67	9'72	2'83	1'73	2'11	18'09	19'16	48		
...	...	5	.....	6	107	572	5'08	2'23	23'12	1'67	0'41	7'47	30'96	25'40	49		
...	...	2	.....	2	119	478	3'00	5'71	15'64	1'31	1'14	8'21	34'01	89'40	50		
...	1	3	.....	16	16	228	2'33	00	9'06	0'49	0'49	0'08	14'03	no data.	51		
1	...	1	.....	2	97	282	1'08	80	11'81	0'82	1'13	7'40	21'77	28'25	52		
...	...	3	.....	3	145	354	1'75	...	11'31	0'32	1'19	9'43	23'02	23'87	53		
...	...	20	.....	28	42	308	08	...	10'38	0'82	1'35	2'03	14'94	85'40	54		
...	...	2	.....	3	24	62	00	...	3'17	0'19	0'20	2'38	6'16	no data.	55		

## ANNUAL FORM NO. VI.—Deaths registered from different causes in the

1	2	3	4	5	6	7
Number.	DISTRICTS AND TOWNS	Population according to census of 1872.	Cholera.	Small-pox.	Fever.	Bowel complaints.
	<i>Patna District.</i>					
56	Patna ... ..	158,900	297	247	2,515	1,818
57	Dinapore (Nizamut) ... ..	27,914	79	4	460	87
58	Barh ... ..	11,050	19	10	172	91
59	Mokamah ... ..	10,715	24	17	221	120
60	Futwah ... ..	11,295	.....	5	258	87
61	Behar ... ..	44,295	254	24	701	45
	<i>Gya District</i>					
62	Gya ... ..	66,843	414	202	1,872	208
63	Doodnugur ... ..	10,068	.....	18	219	14
	<i>Shahabad District.</i>					
64	Arrah ... ..	39,386	151	67	500	45
65	Sasseram ... ..	21,023	14	62	683	95
66	Doomraon ... ..	17,350	14	9	276	18
67	Buxar ... ..	13,446	36	9	205	84
	<i>Muzafferpore District.</i>					
68	Muzafferpore ... ..	38,241	13	31	454	178
69	Lalgunge ... ..	12,338	20	8	102	41
70	Hajipore ... ..	22,300	21	2	201	55
71	Sectumurhee ... ..	16,189	3	.....	65	60
	<i>Durbhunga District.</i>					
72	Durbhunga ... ..	47,540	22	7	732	309
	<i>Saran District.</i>					
73	Chupra ... ..	46,287	190	19	542	324
74	Revilgunge ... ..	13,415	74	3	180	235
75	Sewan ... ..	11,099	2	.....	24	12
	<i>Chumpran District.</i>					
76	Bettiah ... ..	19,708	.....	10	308	98
	<i>Monghyr District.</i>					
77	Monghyr ... ..	59,088	161	50	809	225
78	Jamulpore ... ..	10,463	42	66	179	52
79	Burhon ... ..	19,405	45	41	293	9
80	Shaikpoorah ... ..	11,536	0	38	289	22
	<i>Bhagulpore District.</i>					
81	Bhagulpore ... ..	69,678	81	158	163	491
	<i>Purneah District.</i>					
82	Purneah ... ..	16,057	34	1	578	48
	<i>Maldah District.</i>					
83	English Bazar... ..	12,850	14	.....	518	42
	<i>Sonthal Pergunnahs District.</i>					
84	Dumka ... ..	11,183	30	.....	45	11
	<i>Cuttack District.</i>					
85	Cuttack ... ..	50,878	306	11	308	320
86	Kendrapara ... ..	10,682	115	.....	148	74
87	Jajipore ... ..	10,753	108	.....	163	108
	<i>Pooree District.</i>					
88	Pooree ... ..	22,895	532	1	354	477
	<i>Balasore District.</i>					
89	Balasore... ..	17,610	93	.....	186	211
	<i>Hazaribagh District.</i>					
90	Hazaribagh ... ..	11,050	121	1	280	62
	<i>Lohardugga District.</i>					
91	Ranchi ... ..	12,086	7	.....	342	47
	<i>Singbhoom District</i>					
92	Ohsebassa ... ..	4,823	1	.....	62	48
	<i>Manbhoom District.</i>					
93	Purulia ... ..	5,090	17	1	119	61
	TOTAL OF TOWNS ... ..	2,370,803	8,762	2,870	42,744	12,764
	TOTAL FOR THE PROVINCE ... ..	50,898,435	95,192	12,410	742,587	65,282

## Districts and Towns of the Bengal Province during the year 1878—concluded.

8					9	10	11										12
INJURY.					All other causes.	Total deaths from all causes.	RATIO OF DEATHS PER 1,000 OF POPULATION.										Number.
SUICIDE.		Wounding or accident.	Snake-bite or killed by wild beasts.	Total.			Cholera.	Small-pox.	Fever.	Bowel complaints.	Injury.	All other causes.	FROM ALL CAUSES.				
Male.	Female.												For the year.	Means of previous four years.			
4	3	43	14	64	1,709	8,180	1'80	1'55	15'82	8'48	'40	10'75	38'89	30'53	56		
...	...	17	3	20	270	909	2'83	'14	16'47	2'40	'71	9'09	32'58	19'81	57		
...	...	12	1	13	111	418	1'71	'90	15'56	8'23	1'17	10'04	37'04	42'13	58		
...	...	...	...	...	113	405	2'23	'58	20'62	11'10	...	10'54	46'19	31'90	59		
...	1	2	1	4	71	385	...	'44	21'07	5'93	'35	6'29	34'08	30'01	60		
1	4	30	5	40	402	1,409	5'73	'54	15'82	1'08	'90	9'07	33'10	11'18	61		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
...	7	58	11	82	325	3,168	0'19	3'02	28'00	3'11	1'22	4'86	40'43	40'70	62		
...	...	1	1	6	42	208	...	1'78	21'77	1'30	'40	4'17	20'62	27'99	63		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
7	2	20	4	33	100	969	3'83	2'03	14'21	1'14	'83	2'53	24'60	15'13	64		
2	2	10	1	15	76	825	'66	2'94	26'78	4'51	'71	3'61	39'23	16'30	65		
...	...	9	1	10	20	347	'80	'51	15'90	1'03	'57	1'15	19'99	9'52	66		
2	...	13	...	15	60	489	2'67	'06	19'70	6'24	1'11	4'40	34'88	25'77	67		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
...	5	9	8	22	241	939	'33	'81	11'87	4'05	'57	6'30	24'55	21'36	68		
...	1	3	6	10	50	240	1'62	'04	8'26	3'32	'81	4'78	19'45	17'79	69		
...	...	11	2	13	68	340	'94	'08	9'01	1'56	'59	3'04	15'24	13'90	70		
...	...	4	2	6	24	167	'18	...	4'01	4'26	'37	1'48	10'31	no data	71		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
...	...	3	0	9	169	1,308	'46	'14	15'42	7'77	'18	3'56	27'56	23'21	72		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
1	1	15	5	22	334	1,431	4'10	'41	11'70	6'99	'47	7'21	30'91	23'46	73		
...	...	1	3	4	85	581	5'51	'22	13'41	17'51	'29	6'33	43'30	30'02	74		
...	...	1	1	2	31	71	'18	...	2'16	1'08	'18	2'79	6'39	11'13	75		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
...	...	4	1	5	35	454	...	'50	15'52	4'97	'25	1'77	23'03	27'26	76		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
4	3	10	6	29	349	1,673	2'52	'99	14'40	3'76	'48	5'84	28'02	22'16	77		
...	1	5	2	8	73	404	8'50	6'31	18'74	4'97	'78	6'09	44'38	27'20	78		
...	...	...	4	0	48	462	4'32	5'86	28'15	'80	'57	4'61	44'40	88'18	79		
1	...	9	1	11	34	400	'52	3'29	25'05	1'90	'05	2'94	34'97	31'49	80		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
2	1	29	4	36	480	1,400	1'16	2'20	2'33	7'04	'51	6'88	20'22	19'07	81		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
1	...	1	3	5	70	732	2'11	'06	35'87	2'86	'31	4'35	46'58	29'18	82		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
...	...	...	3	3	105	677	1'08	...	39'89	3'28	'83	8'16	52'04	36'94	83		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
...	...	...	...	...	9	95	2'68	...	4'02	'08	...	'80	8'48	no data	84		
2	1	17	4	24	489	1,456	6'01	'21	6'01	6'28	'47	9'61	28'81	29'01	85		
2	1	1	6	10	193	540	10'76	...	13'85	6'92	'03	18'05	50'55	31'24	86		
2	...	5	2	9	138	856	10'04	...	15'15	10'04	'83	15'62	51'70	39'62	87		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
1	1	4	2	8	205	1,445	23'00	'04	10'31	21'01	'35	8'94	63'07	35'06	88		
...	6	7	5	18	152	680	5'28	...	10'56	11'98	1'02	8'65	37'47	20'49	89		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
...	...	0	...	6	63	542	10'95	'09	26'15	5'61	'54	5'70	49'04	35'48	90		
1	...	10	...	11	147	554	'57	...	28'20	3'68	'91	12'16	45'83	18'47	91		
1	...	3	...	4	16	151	'20	...	17'00	9'95	'82	3'31	31'30	no data	92		
...	...	...	...	...	91	289	2'08	'17	20'89	10'70	...	15'07	50'73	no data	93		
81	88	748	280	1,206	15,270	83,306	3'69	1'08	18'02	5'38	'50	0'44	35'13	29'89			
904	1,503	10,210	10,373	22,990	135,355	1,064,116	1'58	'90	12'38	1'08	'38	2'08	17'73	12'10			

J. M. COATES, M.D.,  
Sanitary Commissioner for Bengal.



## ANNUAL FORM No. VII.—Deaths registered from Cholera in the

Number.	DISTRICTS.	CIRCLES OF REGISTRATION.		VILLAGES.		January.	February.	March.	April.	May.	June.
		Number in each district.	Number from which deaths from cholera were reported.	Number in each district.	Number from which deaths from cholera were reported.						
Burdwan Division.											
1	Burdwan .....	23	27	5,181	412	498	391	883	602	79	34
2	Bankoora .....	6	6	2,540	74	.....	11	67	166	78	3
3	Beerboom .....	9	8	2,478	85	81	80	190	66	9	3
4	Midnapore .....	29	29	14,085	898	121	289	880	604	308	77
5	Hooghly .....	7	7	954	132	70	20	70	157	23	2
6	Serampore .....	7	7	816	85	39	33	71	160	34	10
7	Howrah .....	9	9	1,464	350	175	189	413	307	176	63
Presidency Division.											
8	24-Pergunnahs, exclusive of Suburbs of Calcutta.	36	36	98	711	955	624	960	798	143	18
	Suburbs of Calcutta .....	1	1	5,645	67	153	168	418	473	183	23
	Total	37	37	5,743	778	1,108	792	1,378	1,271	326	46
9	Nuddea .....	33	33	3,801	733	1,028	623	1,410	1,410	420	53
10	Jessore .....	25	25	6,126	1,201	1,607	526	1,164	1,261	678	82
11	Moorsheadabad .....	29	28	4,246	310	253	118	171	301	137	8
Rajshahye and Cooch Behar Division.											
12	Dinagopore .....	18	17	7,108	274	222	163	255	155	79	14
13	Rajshahye .....	14	14	4,653	220	146	61	114	303	57	.....
14	Rungpore .....	17	17	4,206	445	427	166	211	492	332	96
15	Boarra .....	9	9	4,018	200	68	32	35	138	77	2
16	Pabna .....	10	10	2,792	360	132	17	69	381	90	10
17	Darjeeling .....	5	4	.....	*	.....	1	.....	.....	52	67
18	Jalpigoree .....	7	7	283	118	.....	4	22	114	265	401
Dacca Division.											
19	Dacca .....	16	15	5,974	1,238	783	212	188	510	301	94
20	Furzedpore .....	14	14	2,907	648	464	165	504	705	225	53
21	Backergunge .....	10	10	3,295	1,252	100	107	407	600	603	264
22	Mymensing .....	18	18	7,600	703	563	180	799	238	257	88
23	Tippurah .....	13	13	6,093	400	190	233	345	309	67	23
Chittagong Division.											
24	Chittagong .....	13	9	971	17	5	5	6	1	22	20
25	Noakhali .....	11	9	2,542	170	14	1	22	33	30	4
Patna Division.											
26	Patna .....	18	17	4,066	404	4	3	32	110	204	262
27	Gya .....	14	12	6,584	84	.....	10	151	134	95	45
28	Shahabad .....	15	15	4,754	267	17	1	8	86	88	209
29	Mozufferpore .....	17	16	3,062	92	.....	.....	4	69	101	68
30	Durghunga .....	11	11	3,375	190	.....	.....	34	410	706	330
31	Saran .....	13	14	4,350	120	.....	1	1	13	35	27
32	Chumpanan .....	10	5	2,209	27	19	.....	.....	2	.....	25
Bhagulpore Division.											
33	Monghyr .....	15	15	3,295	326	2	2	156	883	551	300
34	Bhagulpore .....	13	13	2,868	548	.....	3	1,443	3,760	1,055	187
35	Purneah .....	14	14	4,229	482	14	.....	598	3,968	1,209	162
36	Maldah .....	10	10	2,362	205	25	40	157	126	37	8
37	Sonthal Pergunnahs .....	6	6	9,548	543	93	35	189	363	316	188
Orissa Division.											
38	Cuttack .....	12	12	7,419	1,830	187	120	264	321	623	510
39	Pooree .....	6	6	4,240	1,140	161	36	225	319	1,783	2,185
40	Balasore .....	10	10	5,043	702	70	40	108	112	70	19
Chota Nagpore Division.											
41	Hazareebagh .....	14	14	8,000	353	.....	.....	8	46	41	202
42	Lohardugga .....	22	16	7,704	128	.....	3	6	55	57	50
43	Singhboon .....	34	13	3,170	81	2	1	23	38	47	.....
44	Maubhoon .....	20	20	6,367	125	1	19	68	131	117	55
TOTAL FOR THE PROVINCE		673	626	1,92,037	18,621	8,840	4,724	12,420	21,128	12,095	6,511

\* There are no regular

## District of the Bengal Province during each month of the year 1878.

						0			7			8	9
July.	August.	September.	October.	November.	December.	TOTAL.			RATIO OF DEATHS PER 1,000 OF POPULATION.			Mean ratio per 1,000 of previous five years.	Number.
						Male.	Female.	Total.	Male.	Female.	Total.		
59	61	51	44	29	89	1,461	1,262	2,723	1.47	1.21	1.34	1.33	1
16	14	.....	.....	2	41	187	151	338	70	56	63	1.30	2
.....	6	6	.....	.....	7	219	219	438	68	60	64	1.09	3
144	139	93	89	131	269	1,704	1,407	3,111	1.35	1.00	1.22	1.05	4
5	32	34	8	26	24	255	216	471	1.47	1.13	1.29	1.42	5
25	24	21	20	42	33	205	190	395	1.37	1.00	1.17	1.27	6
46	50	74	58	51	211	1,084	794	1,878	3.04	2.11	2.50	2.05	7
24	17	22	23	114	493	2,330	1,851	4,181	2.43	2.01	2.22	2.20	8
54	171	100	85	161	301	1,360	1,004	2,364	9.09	9.45	9.19	9.07	
78	188	131	108	275	814	3,690	2,855	6,545	3.32	2.79	3.06	2.90	
5	2	9	7	67	377	2,813	2,595	5,408	3.20	2.77	2.97	3.20	9
72	52	27	9	59	519	3,414	2,609	6,023	3.24	2.60	2.93	3.40	10
5	2	10	10	34	85	636	612	1,248	98	72	85	1.95	11
.....	2	3	3	52	159	670	467	1,137	60	64	73	1.60	12
6	1	1	1	9	34	360	307	667	60	46	51	1.47	13
7	13	20	40	401	1,259	1,836	1,712	3,548	1.07	1.02	1.05	1.01	14
.....	.....	.....	.....	129	241	430	500	730	1.24	1.07	1.05	1.54	15
1	3	2	5	141	238	571	518	1,089	94	86	89	1.06	16
73	36	9	.....	2	6	161	105	266	3.03	2.52	2.80	4.10	17
74	24	16	.....	27	11	543	402	945	2.51	1.90	2.26	1.23	18
44	30	51	78	257	861	1,819	1,590	3,409	2.00	1.67	1.83	3.24	19
25	27	13	38	47	123	1,375	1,084	2,459	1.84	1.40	1.62	3.15	20
48	20	19	13	29	140	1,403	1,147	2,550	1.47	1.23	1.35	4.97	21
23	17	.....	148	500	447	1,521	1,107	2,628	1.28	1.07	1.11	1.89	22
1	1	3	3	35	282	812	680	1,492	1.12	1.07	1.05	1.70	23
13	39	28	2	.....	2	74	69	143	1.4	1.12	1.13	4.10	24
1	.....	.....	2	29	134	105	105	210	35	23	29	9.60	25
120	406	129	35	3	1	793	584	1,377	1.04	73	68	1.47	26
82	291	289	71	28	18	681	543	1,224	71	54	62	1.48	27
366	554	279	146	50	68	1,069	845	1,914	1.27	95	1.10	1.60	28
18	48	28	13	.....	.....	178	171	349	16	16	15	1.04	29
351	3	.....	2	.....	.....	1,110	786	1,896	94	71	85	7.8	30
43	329	208	56	17	23	485	358	843	44	33	40	7.1	31
3	15	93	46	.....	.....	110	93	203	14	13	14	1.31	32
84	92	78	102	88	32	1,353	1,087	2,440	1.70	1.18	1.34	1.03	33
74	140	137	27	10	31	3,804	3,067	6,871	4.15	3.37	3.76	9.3	34
22	34	15	0	143	340	3,561	3,043	6,604	4.00	3.62	3.85	9.5	35
1	2	.....	1	43	71	308	212	520	93	61	76	2.39	36
279	160	64	11	25	57	1,031	775	1,806	1.63	1.23	1.43	7.2	37
890	739	385	549	820	663	3,035	3,045	6,080	4.18	3.96	4.06	2.27	38
1,535	456	88	36	506	179	4,018	3,551	7,569	10.31	9.33	9.83	3.64	39
304	104	43	58	283	636	998	859	1,857	2.63	2.19	2.39	3.92	40
606	900	591	54	6	.....	1,883	1,061	2,944	3.48	2.88	3.18	9.0	41
29	90	71	11	26	7	233	171	404	37	27	32	9.5	42
4	1	1	.....	.....	.....	50	57	110	28	28	28	3.4	43
123	84	12	0	8	41	374	294	668	74	69	67	9.4	44
5,722	5,293	3,337	2,015	4,557	8,020	52,118	45,074	95,192	1.74	1.43	1.58	1.92	

Villages in Darjeeling.

J. M. COATES, M.D.,  
Sanitary Commissioner for Bengal.

## ANNUAL FORM NO. VIII.—Deaths registered from Small-pox in the

1	2	3	4							
Number.	DISTRICTS.	CIRCLES OF REGISTRATION.		VILLAGES.		January.	February.	March.	April.	May.
		Number in each district.	Number from which deaths from small-pox were reported.	Number in each district.	Number from which deaths from small-pox were reported.					
Burdwan Division.										
1	Burdwan	28	23	5,181	110	10	31	89	76	47
2	Bankura	6	0	2,510	56	2	2	19	28	31
3	Deerhoom	9	0	2,478	17	2	3	0	19	0
4	Midnapore	20	25	14,055	250	64	56	86	84	68
5	Hoochly	7	7	954	31			6	10	19
6	Serampore	7	7	846	34	1	6	11	17	
7	Howrah	9	8	1,464	72	3	3	26	42	49
Presidency Division.										
8	24 Pargunnahs, exclusive of Suburbs of Calcutta.	36	21	98	62			9	13	13
	Suburbs of Calcutta	1	1	5,645	51	7	15	68	116	121
	Total	37	22	5,743	113	7	15	77	129	134
9	Nuddea	33	18	3,891	64	1		11	29	52
10	Jessore	25	19	5,120	135	18	4	9	28	50
11	Moorsheadabad	20	9	4,246	22	2	1	4	5	4
Rajshahye and Cooch Behar Division.										
12	Dinapore	18	9	7,108	14	7		7	2	13
13	Rajshahye	14	8	4,653	30	3	6	1	2	2
14	Rungpore	17	9	4,206	20	10	16	6	6	11
15	Bogra	0	2	4,018	6				1	4
16	Pubna	10	7	2,792	18	14		2	1	9
17	Darjeeling	5	2				1			
18	Jalpigorie	7	2	283	12	4	5		7	
Dacca Division.										
19	Dacca	15	13	5,874	134	9	21	32	50	43
20	Furzedpore	14	9	2,907	80	7	4	14	8	20
21	Backergunge	16	14	3,205	262	16	16	68	65	53
22	Mymensingh	18	18	7,600	317	51	54	88	121	118
23	Tipporah	13	12	6,083	63	2	44	56	14	11
Chittagong Division.										
24	Chittagong	13	3	371	12	3	5	16	12	4
25	Noakhalli	11	6	2,542	132	29	28	38	20	44
Patna Division.										
26	Patna	18	18	4,008	908	30	72	169	301	139
27	Gya	14	12	6,584	132	20	31	99	109	130
28	Shahabad	15	15	4,764	509		12	31	70	93
29	Muzafferpore	17	16	3,800	277	6	64	120	64	77
30	Darbhanga	11	10	3,875	131	4	14	79	101	44
31	Sarun	13	12	4,350	72	1	7	40	32	29
32	Chumparan	10	9	2,209	94	2	6	7	39	66
Bhagulpore Division.										
33	Monghyr	15	15	3,295	432	13	40	289	337	273
34	Bhagulpore	13	12	2,466	225	48	27	69	84	96
35	Purneah	14	11	4,329	30	9	19	17	33	43
36	Maldah	10	7	2,352	22		1	2	5	9
37	Southal Pargunnahs	6	5	9,546	155	12	14	35	53	69
Orissa Division.										
38	Cuttack	12	10	7,419	259	53	62	94	60	44
39	Pooree	6	6	4,240	93	12	6	18	23	9
40	Balasore	10	9	5,043	228	87	109	60	13	11
Chota Nagpore Division.										
41	Hazareebagh	14	10	8,000	43	4	9	17	35	23
42	Lohardugga	22	13	7,708	250	5	16	7	12	21
43	Singbhoon	34		3,179	30					
44	Manbhoon	20	13	6,367	36	2	6		11	16
TOTAL FOR THE PROVINCE		673	467	1,92,987	5,068	690	838	1,826	2,182	1,901

\* There are no regular

## Districts of the Bengal Province during each month of the year 1878.

5							6			7		8			9	10
June.	July.	August.	September.	October.	November.	December.	TOTAL.			NUMBER OF THESE DEATHS AMONG CHILDREN—		TOTAL RATIO OF DEATHS PER 1,000 OF POPULATION.			Mean ratio per 1,000 of previous five years.	Number.
							Male.	Female.	Total.	Under 1 year.	Under 12 years.	Male.	Female.	Total.		
41 27 4 63 9 16 47	23 10 2 40 3 6 24	16 15 ..... 46 4 1 22	24 7 ..... 23 5 9 16	6 1 ..... 18 1 2 16	7 5 ..... 24 1 2 10	54 8 ..... 19 3 2 10	259 82 23 358 39 53 163	171 79 19 233 22 27 106	430 161 42 591 61 80 268	44 21 6 71 3 4 26	177 71 9 166 4 24 62	20 31 00 24 22 13 45	14 29 05 18 11 13 28	21 30 06 23 16 20 36	04 22 26 17 13 04 10	1 2 3 4 5 6 7
25 85	10 49	19 35	10 21	7 21	19 13	23 34	72 344	80 241	152 585	10 80	31 132	07 227	09 227	07 227	06 50	8
110	59	54	31	28	31	62	416	321	737	90	168	37	31	34	10	
50 47 7	26 50 2	11 36 1	31 6 1	14 19 .....	17 13 1	33 23 4	139 171 17	141 132 16	280 303 32	53 48 2	130 98 10	15 16 03	15 12 02	16 14 02	03 13 32	9 10 11
..... 1 6 4	..... 16 2 1	2 2 .....	..... 1 .....	..... ..... .....	..... ..... 2	..... 7 3	21 27 42	11 9 27	32 36 69	5 3 13	14 12 37	03 04 01	01 01 02	03 02 01	09 04 02	12 13 14
..... .....	..... 5	..... 2	..... 1	..... 2	..... 3	..... 8	..... 17 4	..... 16 6	..... 33 10	No data.		07 03	14 04	10 04	10 05	17 18
35 21 61 100 6	25 2 40 67 4	7 4 33 45 1	11 7 15 19 .....	3 ..... 30 20 3	7 ..... 18 10 2	4 5 25 37 84	132 61 229 446 68	111 33 109 288 63	243 94 428 734 146	66 15 47 53 29	96 37 110 110 77	14 08 23 37 11	11 04 21 24 08	13 06 21 31 19	08 04 20 21 05	19 20 21 22 23
10 34	1 19	5 17	2 5	3 8	2 1	1 9	29 149	34 103	63 262	32 25	30 63	05 32	06 22	06 27	11 10	24 25
135 163 106 40 24 34 24	51 71 92 14 3 21 14	23 43 20 10 5 16 16	31 160 29 ..... 6 ..... 3	8 14 251 1 ..... 3 1	7 ..... 78 ..... 10 10 .....	4 5 52 6 4 99 4	132 61 229 446 68	111 33 109 288 63	243 94 428 734 146	66 15 47 53 29	96 37 110 110 77	14 08 23 37 11	11 04 21 24 08	13 06 21 31 19	08 04 20 21 05	19 20 21 22 23
148 58 11 13 34	44 32 7 4 21	22 19 3 1 15	7 9 3 ..... 7	9 4 ..... 6 1	14 12 ..... 1 14	26 14 ..... 2 7	571 226 77 31 147	660 236 68 12 185	1,231 462 145 43 282	400 104 5 2 45	578 296 104 6 127	63 24 08 09 23	72 25 08 03 21	67 26 08 06 22	41 20 10 29 30	33 34 35 36 37
14 6 4	3 4 6	17 6 6	8 3 2	3 5 5	3 4 14	8 8 27	170 44 168	186 60 185	365 194 353	124 26 112	217 40 165	24 11 44	24 15 47	24 13 45	35 15 25	38 39 40
10 19 ..... 17	9 18 ..... 7	2 16 .....	3 20 .....	..... 13 .....	7 10 .....	32 15 .....	91 94 40	60 78 26	151 172 68	69 43 11	121 71 23	22 15 07	16 12 05	19 13 06	15 20 07	41 42 43 44
1,545	846	570	530	409	368	629	6,455	5,355	12,410	3,114	5,343	21	10	20	10	

villages in Darjeeling.

J. M. COATES, M.D.,  
Sanitary Commissioner for Bengal.

## ANNUAL FORM No. 'IX.—Deaths registered from Fevers in the

1	2	3	4							
Number.	DISTRICTS.	CIRCLES OF REGISTRATION.		VILLAGES.		January.	February.	March.	April.	May.
		Number in each district.	Number from which deaths from fevers were reported.	Number in each district.	Number from which deaths from fevers were reported.					
Burdwan Division.										
1	Burdwan ... ..	28	28	5,181	4,040	2,473	1,828	2,155	2,191	1,716
2	Bankoora ... ..	6	6	2,510	1,465	578	428	716	613	419
3	Beerbhoom ... ..	9	9	2,478	1,722	1,391	857	1,137	1,079	695
4	Midnapore ... ..	29	29	14,035	8,063	4,047	3,111	3,513	3,111	2,080
5	Hoochly ... ..	7	7	954	672	811	601	606	530	410
6	Seramapore ... ..	7	7	848	636	535	395	455	450	275
7	Howrah ... ..	9	9	1,464	861	743	540	673	503	374
Presidency Division.										
8	24-Pergunnahs, exclusive of Suburbs of Calcutta ..	86	86	96	4,617	3,323	2,369	2,039	2,338	1,819
	Suburbs of Calcutta ... ..	1	1	5,045	95	862	537	525	424	346
	Total ... ..	87	87	5,743	4,712	4,185	2,906	3,464	2,762	2,165
9	Nuddea ... ..	33	33	3,891	3,108	3,213	2,083	2,673	2,298	1,938
10	Jessore ... ..	25	25	5,126	3,730	3,730	3,058	2,659	2,817	2,007
11	Moorsheadabad ... ..	29	29	4,240	3,540	2,739	1,900	2,708	2,520	1,602
Rajshahye and Cooch Behar Division.										
12	Dinagapore ... ..	18	18	7,108	4,078	3,792	2,994	3,092	2,910	2,093
13	Rajshahye ... ..	14	14	4,653	4,393	2,980	2,100	2,172	2,192	1,984
14	Itanagore ... ..	17	17	4,200	2,483	2,778	2,542	2,711	2,500	2,234
15	Bogra ... ..	9	9	4,018	2,370	1,197	989	1,040	1,094	640
16	Patna ... ..	10	10	2,792	1,652	2,082	1,106	1,086	1,265	1,024
17	Darjeeling ... ..	5	5	*	*	94	85	77	72	109
18	Jalpigore ... ..	7	7	283	241	766	671	754	776	751
Dacca Division.										
19	Dacca ... ..	15	15	5,874	4,021	2,879	1,711	1,690	1,865	1,464
20	Furzedpore ... ..	14	14	2,907	1,835	2,363	1,483	1,338	1,122	860
21	Backergunge ... ..	16	16	3,295	2,610	854	871	871	718	713
22	Mymensing ... ..	18	18	7,600	5,310	1,775	1,467	1,243	1,128	1,346
23	Tipperah ... ..	13	13	6,093	4,234	1,125	964	1,025	833	730
Chittagong Division.										
24	Chittagong ... ..	13	13	971	840	941	673	756	590	684
25	Noakhalli ... ..	11	11	2,542	1,766	794	560	517	599	651
Patna Division.										
26	Patna ... ..	18	18	4,066	2,738	1,216	1,072	1,412	1,895	1,740
27	Gya ... ..	14	14	4,584	327	1,404	1,168	1,688	1,770	1,521
28	Shahabad ... ..	15	15	4,754	2,897	1,033	912	1,035	1,444	1,116
29	Mozufferpore ... ..	17	17	3,969	2,840	869	849	1,561	1,618	1,616
30	Darbhanga ... ..	11	11	3,875	2,303	1,271	1,293	1,400	2,017	2,057
31	Saran ... ..	13	13	4,350	1,777	462	517	675	707	538
32	Chumpanan ... ..	10	10	2,299	1,744	1,055	801	955	1,221	1,095
Bhagulpore Division.										
33	Monghyr ... ..	15	15	3,295	2,662	1,846	1,567	2,220	2,364	2,005
34	Bhagulpore ... ..	13	13	3,868	1,969	1,715	1,352	1,972	1,133	1,895
35	Purneah ... ..	14	14	4,279	3,467	3,099	3,171	3,440	3,741	3,463
36	Maldah ... ..	10	10	2,352	1,858	1,948	1,106	932	1,040	919
37	Southal Pergunnahs ... ..	6	6	9,646	6,632	802	586	671	1,334	905
Orissa Division.										
38	Cuttack ... ..	12	12	7,419	7,103	1,668	1,433	1,650	1,442	1,240
39	Pooree ... ..	6	6	4,240	1,788	642	347	479	863	345
40	Balasore ... ..	10	10	5,043	2,026	657	539	587	528	386
Chota Nagpore Division.										
41	Hazaribagh ... ..	14	14	8,000	2,012	759	648	836	851	643
42	Lohardugga ... ..	22	22	7,708	4,885	1,538	1,358	1,670	1,734	1,681
43	Singbhoom ... ..	34	34	5,179	2,208	399	336	452	436	308
44	Manbhoom ... ..	20	20	6,367	2,172	659	548	760	737	539
TOTAL FOR THE PROVINCE ...		673	673	192,987	123,340	75,294	55,436	63,519	63,568	53,506

\* There are no regular

## Districts of the Bengal Province during each month of the year 1878.

5							6			7			8	9
June.	July.	August.	September.	October.	November.	December.	TOTAL.			RATIO OF DEATHS PER 1,000 OF POPULA- TION.			Mean ratio per 1,000 of pre- vious five years.	Number.
							Male.	Female.	Total.	Male.	Female.	Total.		
1,881	1,539	1,406	2,472	3,236	5,443	5,748	17,138	14,000	32,038	17.26	14.39	15.80	8.35	1
446	361	363	638	851	1,102	1,896	4,376	4,005	8,381	10.59	14.99	15.78	7.15	2
730	626	686	949	1,094	2,074	2,037	6,005	6,168	12,123	20.49	16.94	18.74	14.89	3
1,765	1,658	1,823	1,751	2,211	3,013	3,583	17,404	14,276	31,680	13.82	11.10	12.44	6.76	4
336	334	421	504	639	743	786	3,447	3,338	6,825	20.15	17.50	18.81	11.63	5
262	254	383	544	630	720	902	3,147	2,649	5,796	16.24	13.20	14.71	8.73	6
462	410	451	438	500	871	1,216	4,210	3,069	7,288	11.83	8.19	9.90	7.45	7
1,719	1,631	1,829	2,095	2,623	2,990	3,676	16,430	12,402	20,241	17.85	13.40	15.67	14.06	8
380	301	409	479	709	1,307	1,486	4,267	3,708	7,915	27.88	34.93	30.77	20.75	
2,099	1,922	2,328	2,574	3,332	4,197	5,162	21,046	16,110	37,156	18.95	15.72	17.40	14.36	
1,820	1,659	1,929	2,308	2,893	3,951	6,310	18,603	14,462	33,065	21.14	15.43	18.21	9.70	9
1,718	1,702	1,879	2,164	2,962	3,845	4,970	19,905	15,825	35,730	18.93	13.45	17.31	12.00	10
1,684	1,346	2,031	2,421	2,472	3,763	4,676	16,537	13,232	29,769	25.72	18.73	22.06	15.23	11
2,417	2,253	2,404	2,212	2,230	2,515	2,734	19,089	13,075	32,164	21.58	18.02	21.41	12.02	12
1,861	1,714	2,050	2,171	1,992	2,462	2,674	15,527	10,635	26,162	23.86	16.11	19.95	10.96	13
1,702	1,302	1,414	1,290	1,693	1,787	2,185	14,570	9,087	23,657	13.30	9.18	11.28	6.38	14
710	675	680	678	669	823	1,028	4,159	4,159	10,129	17.16	12.46	14.83	10.36	15
723	668	605	473	632	787	833	6,475	4,839	11,354	10.74	7.97	9.55	9.14	16
89	104	57	55	69	64	73	635	842	977	11.06	8.21	10.31	7.19	17
641	669	590	326	359	373	428	4,008	3,056	7,064	18.47	15.14	16.37	5.86	18
1,226	1,135	1,162	1,118	1,430	1,852	2,309	10,906	8,965	19,871	12.03	9.46	10.71	7.78	19
902	684	814	742	926	1,200	1,024	8,364	5,704	14,068	11.25	7.38	9.28	5.47	20
648	616	601	654	732	928	1,196	5,339	3,814	9,153	5.38	4.09	4.76	4.02	21
1,186	1,008	852	807	891	1,140	1,097	8,222	5,716	13,934	6.92	4.92	5.93	5.31	22
809	741	780	723	907	784	987	6,167	4,221	10,388	8.51	6.07	7.31	4.36	23
748	622	919	681	852	761	915	5,518	3,926	9,444	11.10	7.18	9.05	9.06	24
609	833	738	582	538	627	691	4,228	3,491	7,719	9.20	7.00	8.45	6.06	25
2,702	1,886	2,621	2,764	2,523	2,366	1,945	12,435	11,466	23,891	16.32	16.36	16.31	6.73	26
2,503	1,634	2,986	2,618	2,540	2,013	1,789	13,610	10,908	24,468	14.20	10.85	12.54	7.69	27
1,873	1,423	1,880	2,206	2,692	2,057	1,657	10,867	7,891	18,748	12.98	8.88	10.87	7.21	28
1,685	1,190	1,667	1,121	1,224	1,922	1,361	8,518	7,069	15,577	8.58	6.20	7.39	3.06	29
1,840	1,437	1,451	1,789	1,673	1,659	1,604	11,465	7,606	19,531	10.81	7.03	8.90	3.54	30
810	964	981	1,187	1,102	962	765	5,593	3,812	9,315	5.52	3.67	4.61	3.40	31
1,106	858	968	815	725	1,083	1,026	6,778	4,630	11,708	9.19	7.00	8.13	3.55	32
2,468	1,616	2,084	2,100	2,377	2,564	2,095	14,045	11,251	25,296	15.65	12.28	13.95	15.31	33
1,887	1,463	1,829	1,797	1,403	1,700	1,682	11,891	8,977	20,868	12.06	9.87	11.42	8.29	34
2,321	1,967	2,124	1,919	2,393	3,311	3,424	20,135	14,728	34,863	22.97	17.66	20.33	6.74	35
1,030	782	984	1,056	1,405	1,768	1,878	8,871	5,923	14,794	20.79	17.16	21.87	9.77	36
904	632	1,089	943	612	980	1,033	6,376	4,707	11,083	10.12	7.47	8.80	7.34	37
1,358	1,026	1,113	1,113	1,352	1,891	3,059	9,248	9,106	18,354	12.75	11.83	12.27	6.56	38
968	365	267	408	548	708	942	3,847	2,824	6,671	7.31	7.42	7.30	4.06	39
614	382	401	500	892	1,287	2,279	4,461	4,201	8,752	11.76	10.97	11.36	4.39	40
1,185	680	926	618	704	574	476	5,322	3,772	9,094	13.40	10.00	11.79	8.38	41
2,147	1,690	2,252	2,481	1,898	1,777	1,483	11,647	9,982	21,629	18.73	16.21	17.48	8.81	42
361	314	320	352	314	322	381	2,373	1,933	4,304	11.64	9.51	10.58	7.05	43
703	488	412	408	844	352	496	3,719	2,676	6,395	7.42	5.41	6.43	5.27	44
55,624	45,849	53,563	55,638	60,743	75,132	85,136	419,294	323,593	742,887	14.08	10.75	12.38	7.58	

villages in Darjeeling.

## ANNUAL FORM NO. X.—Deaths registered from Bowel Complaints in the

1	2	3	4								
Number.	DISTRICTS.	CIRCLES OF REGISTRATION.		VILLAGES.		January.	February.	March.	April.	May.	June.
		Number in each district.	Number from which deaths from bowel complaints were reported.	Number in each district.	Number from which deaths from bowel complaints were reported.						
Burdwan Division.											
1	Burdwan	28	24	5,181	4780	214	131	163	174	119	101
2	Bankura	6	6	2,540	328	77	70	81	91	57	38
3	Deerhoom	9	0	2,474	97	32	14	33	22	19	15
4	Midnapore	29	29	14,035	2,010	591	389	470	451	362	301
5	Hoochly	7	7	954	297	113	50	59	51	58	30
6	Serampore	7	7	848	506	184	145	115	86	62	50
7	Howrah	9	9	1,464	407	278	254	270	159	115	135
Presidency Division.											
8	24-Pergunnahs, exclusive of Suburbs of Calcutta.	36	34	98	608	158	158	158	158	127	06
	Suburbs of Calcutta	1	1	5,645	81	399	213	209	120	120	117
	Total	37	35	5,743	690	557	371	367	278	247	183
9	Nuddea	33	33	3,301	453	151	120	219	201	142	99
10	Jessore	25	24	5,126	197	63	34	23	46	39	25
11	Moorsheadabad	29	27	4,246	225	72	64	61	50	33	29
Rajshahys and Cooch Behar Division.											
12	Dinagopore	18	16	7,108	271	40	34	59	58	80	22
13	Rajshahys	14	13	4,653	64	16	15	14	5	10	2
14	Rangpore	17	17	4,306	405	110	75	139	115	74	69
15	Borra	9	9	4,818	49	17	11	3	11	9	1
16	Pubna	10	10	2,792	172	59	44	34	64	61	9
17	Darjeeling	5	5	*	*	3	4	5	10	27	36
18	Julpigoreo	7	7	283	40	18	14	8	1	25	4
Dacca Division.											
19	Dacca	15	15	5,874	970	269	179	177	225	192	132
20	Furzedpore	14	14	2,907	231	71	74	39	32	31	37
21	Rackergunge	16	16	3,395	433	47	62	58	46	44	46
22	Mymensing	18	18	7,690	372	92	41	55	62	55	53
23	Tipperah	13	13	6,093	220	43	47	50	35	32	16
Chittagong Division.											
24	Chittagong	13	13	971	211	75	56	60	51	46	47
25	Noakholli	11	10	2,542	110	14	11	14	17	12	17
Patna Division.											
26	Patna	18	18	4,060	1,093	237	217	310	376	319	350
27	Gya	14	13	6,584	41	107	55	62	40	45	66
28	Shahabad	15	15	4,754	395	37	49	33	62	34	65
29	Mozufferpore	17	17	3,069	1,414	262	208	387	427	380	466
30	Durhhunga	11	11	8,875	963	212	230	270	368	464	455
31	Saran	13	13	4,350	1,853	195	221	285	282	205	247
32	Chumparun	10	10	2,299	269	70	61	73	67	58	70
Bhagulpore Division.											
33	Monghyr	15	15	3,293	427	80	65	124	147	201	98
34	Bhagulpore	13	13	2,504	417	115	73	135	153	170	95
35	Furneah	14	13	4,239	163	53	31	30	101	47	38
36	Malda	10	10	2,352	46	26	7	15	12	19	3
37	Sonthal Pergunnahs	6	0	9,646	436	24	28	55	53	52	41
Orissa Division.											
38	Outlack	12	12	7,419	2,046	343	375	444	383	406	470
39	Pooree	6	6	4,240	826	161	120	269	191	178	204
40	Balasore	10	10	5,043	2,163	401	849	841	342	537	388
Chota Nagpore Division.											
41	Hazaribagh	14	13	8,000	446	53	34	71	48	95	69
42	Lohardugga	22	22	7,708	1,302	221	247	347	209	266	373
43	Singbhoom	34	33	3,179	921	86	131	154	123	126	106
44	Manbhoom	20	20	6,367	632	60	80	98	97	88	109
TOTAL FOR THE PROVINCE		673	660	192,987	25,989	5,929	4,830	6,080	5,891	5,270	5,216

\* There are no regular

## Districts of the Bengal Province during each month of the year 1878.

5						6			7			8	9
July.	August.	September.	October.	November.	December.	TOTAL.			RATIO OF DEATHS PER 1,000 OF POPULATION.			Mean ratio per 1,000 of previous five years.	Number.
						Male.	Female.	Total.	Male.	Female.	Total.		
121	120	169	153	138	134	1,022	715	1,737	1'02	'00	'85	'90	1
55	46	30	51	40	46	431	280	691	1'03	'97	1'30	'78	2
15	14	8	5	11	10	88	87	185	'20	'23	'26	'39	3
306	305	301	267	259	290	2,447	1,847	4,294	1'04	1'43	1'68	1'28	4
48	95	100	123	115	140	652	436	988	3'18	2'20	2'72	1'39	5
44	109	170	160	109	204	871	636	1,507	4'60	3'17	3'82	2'50	6
158	127	200	210	217	331	1,387	1,079	2,466	3'80	2'67	3'37	2'14	7
87	91	905	129	139	209	929	646	1,575	'96	'73	'84	'70	8
144	203	264	308	418	527	1,937	1,105	3,042	12'80	10'41	11'82	10'18	
231	294	359	437	557	736	2,506	1,751	4,257	2'69	1'70	2'19	1'59	
81	54	73	67	80	108	837	564	1,401	'95	'60	'77	'61	9
19	43	20	28	28	27	202	132	304	'24	'12	'18	'13	10
48	20	34	37	27	58	324	215	539	'50	'30	'39	'36	11
15	21	21	23	17	23	229	134	363	'20	'18	'24	'23	12
6	9	8	11	14	13	91	34	125	'13	'05	'09	'11	13
40	30	26	76	60	58	553	313	866	'63	'29	'41	'14	14
5	19	8	14	14	15	84	25	109	'07	'15	'09	'15	15
10	8	5	17	23	19	222	134	356	'26	'22	'20	'22	16
51	26	14	10	7	6	122	77	199	2'20	1'84	2'10	1'10	17
11	11	9	11	11	91	91	33	123	'42	'15	'29	'31	18
123	114	148	167	258	279	1,281	982	2,263	1'41	1'03	1'22	'81	19
15	15	15	20	28	27	279	125	404	'37	'16	'26	1'35	20
47	36	22	50	56	63	336	211	567	'35	'22	'29	'24	21
43	49	46	54	70	91	419	217	606	'35	'21	'28	'33	22
23	13	5	9	24	39	198	143	341	'27	'20	'24	'17	23
50	71	57	68	49	46	416	275	691	'63	'50	'60	'77	24
12	11	12	13	6	16	90	65	155	'10	'14	'16	'20	25
313	497	442	389	356	294	2,153	1,852	4,010	2'83	2'32	2'57	1'71	26
90	113	137	64	81	38	633	291	924	'66	'29	'47	'45	27
70	100	85	90	108	172	610	349	965	'73	'39	'55	'27	28
238	319	295	286	297	198	2,210	1,537	3,747	1'00	1'35	1'00	'73	29
230	219	248	250	323	273	2,208	1,324	3,532	1'05	1'21	1'50	'63	30
182	339	449	371	360	299	2,021	1,412	3,433	2'02	1'32	1'60	1'10	31
50	55	62	62	99	11	431	289	720	'58	'41	'49	'62	32
84	99	140	119	136	105	704	534	1,238	'83	'58	'71	'13	33
83	90	88	83	70	78	740	501	1,241	'80	'55	'67	'62	34
12	15	11	20	19	41	256	162	418	'29	'19	'24	'20	35
5	3	1	3	5	4	69	34	103	'20	'09	'15	'20	36
55	89	52	47	57	47	415	185	600	'35	'29	'47	'38	37
408	443	303	297	332	328	2,685	1,945	4,630	3'70	2'39	3'03	2'07	38
266	206	260	259	264	225	1,968	1,109	2,617	3'67	2'91	3'10	1'61	39
372	317	294	337	385	427	2,497	1,793	4,290	0'88	4'59	5'50	2'91	40
107	147	106	62	39	34	590	275	865	1'48	'73	1'12	'45	41
311	425	503	292	177	113	2,072	1,462	3,534	3'33	2'37	2'85	1'30	42
108	122	153	135	63	110	868	528	1,396	4'26	2'60	3'43	1'80	43
79	74	68	66	85	88	652	330	982	1'30	'68	'98	'61	44
4,680	5,384	5,502	5,294	5,569	5,498	38,961	26,331	65,292	1'30	'87	1'08	'71	

villages in Darjeeling.

J. M. COATES, M.D.,  
Sanitary Commissioner for Bengal.





**APPENDIX No II**

**SHOWING THE RESULTS IN THOSE CIRCLES  
INCLUDED IN DISTRICTS**

**IN WHICH THE AVERAGE DEATH RATE EXCEEDS 25 PER 1,000  
OF POPULATION**

**DURING THE YEAR 1878**



Statement showing the results in those circles included in Districts in the Bengal Province in which the average Death-rate exceeds 25 per 1,000 of population during the year 1878.

DISTRICTS.	CIRCLES.	POPULATION.	DEATHS FROM—								RATIO PER 1,000 OF POPULATION.								Number.
			Cholera.	Small-pox.	Fever.	Bowel complaints.	Injury.	Other causes.	TOTAL.	Cholera.	Small-pox.	Fever.	Bowel complaints.	Injury.	Other causes.	TOTAL.			
1	Hoochly ... .. T	34,701	160	20	647	332	14	212	1,381	3.04	.57	18.00	9.55	.40	0.00	38.79	1		
2	Balagurh ... .. R	15,630	49	2	500	19	0	54	490	1.85	.12	28.41	1.21	.38	3.71	30.77	2		
3	Bansbarah ... .. R	41,309	34	8	1,371	180	28	100	1,781	.82	.19	33.14	4.35	.07	8.87	43.11	3		
4	Hoochly ... .. R	32,777	21	1	309	66	8	51	546	.64	.03	12.17	2.01	.24	1.55	16.65	4		
5	Dhuneakhally ... .. R	115,501	168	13	1,499	194	22	73	1,902	.92	.11	12.86	1.08	.18	.62	16.34	5		
6	Balagurh ... .. R	44,470	65	1	1,021	50	11	160	1,321	1.48	.02	22.73	1.32	.51	5.50	29.48	6		
7	Pandooah ... .. R	77,352	107	10	1,522	138	28	154	1,909	1.38	.20	19.08	1.78	.36	2.04	25.46	7		
8	Suburbs of Calcutta ... .. T	257,119	2,564	685	7,915	3,042	85	3,223	17,214	9.19	2.27	30.77	11.82	.58	12.53	66.94	8		
9	North Suburban ... .. T	21,127	61	12	487	124	14	63	761	2.52	.49	20.18	5.13	.58	2.61	31.54	9		
10	South ditto ... .. T	65,994	79	17	628	153	17	96	964	1.19	.16	9.51	2.01	.25	1.45	14.00	10		
11	North ditto ... .. T	10,888	10	3	187	11	1	6	206	1.79	.18	18.01	1.03	.09	.67	27.93	11		
12	South ditto ... .. T	98,189	78	23	578	54	16	73	753	2.76	.81	20.39	1.89	.26	.56	25.92	12		
13	North ditto ... .. T	17,179	25	1	419	92	19	46	633	1.51	.05	25.14	6.55	1.10	.26	36.84	13		
14	Nyhatly ... .. R	16,783	35	3	532	30	15	25	600	2.09	.17	32.98	1.79	.80	1.49	39.44	14		
15	Buissenhaut ... .. T	12,421	57	...	200	8	8	50	320	4.59	...	16.58	.64	.64	4.02	20.44	15		
16	Baduria ... .. T	12,048	23	...	254	3	18	3	274	1.81	...	18.44	.23	1.02	.07	21.59	16		
17	Tollygunge ... .. R	40,064	40	8	684	7	6	30	684	1.22	.18	14.57	.17	.14	.74	17.07	17		
18	Achilpore ... .. R	60,726	54	4	1,040	148	71	105	1,426	.89	.06	6.75	2.43	1.16	1.72	15.04	18		
19	Shobdopore ... .. R	98,418	119	...	918	27	61	42	1,298	1.73	...	14.53	.89	.39	1.35	18.97	19		
20	Scarrapore ... .. R	26,277	115	...	814	15	7	45	1,029	5.44	.19	30.07	.57	.28	.17	38.16	20		
21	Bhangore ... .. R	73,003	108	...	1,128	66	20	46	1,368	1.47	...	15.45	.76	.27	.63	18.09	21		
22	Dum-Dum ... .. R	25,466	111	10	770	42	8	68	978	4.01	.58	25.93	1.48	.28	.20	34.47	22		
23	Barackpore ... .. R	23,632	30	7	669	96	4	72	878	1.26	.29	28.30	4.00	.16	3.04	37.13	23		
24	Burset ... .. R	70,683	112	4	1,046	15	25	27	1,260	1.57	.05	15.36	.11	.35	.38	27.05	24		
25	Deykundia ... .. R	48,388	81	...	651	5	17	38	724	1.68	...	11.85	.10	.34	.78	14.95	25		
26	Habra ... .. R	69,110	112	...	1,033	2	24	13	1,134	.75	...	14.33	.33	.31	.13	16.25	26		
27	Nyhatly ... .. R	70,671	34	3	1,193	24	24	212	1,490	.49	.03	16.88	.33	.38	.99	21.06	27		
28	Buissenhaut ... .. R	57,245	228	...	743	22	32	74	1,169	5.20	...	12.07	.38	.55	1.20	20.42	28		
29	Baduria ... .. R	105,978	40	...	1,428	4	39	10	1,621	.37	...	13.47	.08	.30	.08	14.35	29		
30	Harwah ... .. R	30,739	109	...	618	20	27	30	888	.99	...	16.82	.78	.78	1.08	23.99	30		
31	Hannabad ... .. R	46,192	164	6	716	63	47	98	1,114	3.55	.12	15.60	1.79	1.01	2.12	24.11	31		
32	Sakura ... .. R	10,211	38	...	1,331	14	44	28	1,586	.42	...	16.03	.15	.49	.31	17.92	32		
33	Assensonee ... .. R	51,173	11	...	1,290	15	17	10	1,313	.21	...	24.62	.29	.35	.13	25.55	33		
34	Kalaita ... .. R	18,150	...	...	1,321	17	41	40	1,431	.63	...	15.45	.17	.41	.99	21.06	34		
35	Kalkunge ... .. R	113,544	8	1	2,396	49	79	67	2,690	.73	.008	21.19	.43	.69	.76	23.74	35		
36	Mugora ... .. R	14,972	26	...	1,189	14	14	40	1,280	.67	...	23.48	.31	.31	1.02	25.66	36		
37	Barriepore ... .. R	67,531	107	20	1,231	21	31	21	1,401	.47	.20	18.22	.31	.45	.31	22.07	37		
38	Joyntingee ... .. R	60,350	424	1	831	45	35	178	1,514	6.11	.01	11.98	.61	.50	.25	21.33	38		
39	Canning ... .. R	33,181	171	...	476	24	30	40	740	5.18	...	14.31	.72	.90	1.47	22.67	39		
40	Diamond Harbour ... .. R	47,205	71	16	825	30	48	10	940	.50	.34	18.77	.33	1.01	.21	22.47	40		
41	Sultainpore ... .. R	73,822	347	1	873	64	38	142	1,455	4.68	.01	11.81	.73	.51	1.92	19.70	41		
42	Dohpore ... .. R	41,125	165	4	423	112	38	46	778	3.76	.09	10.28	.72	.92	1.11	18.01	42		
43	Bankipore ... .. R	62,150	315	1	687	50	43	82	1,184	3.41	.01	7.46	.60	.40	.88	12.94	43		
44	Mathgorajpore ... .. R	42,241	363	...	656	92	17	112	1,240	8.39	...	10.52	.17	.30	.26	20.35	44		
45	Berhampore ... .. T	27,280	19	...	516	52	6	47	640	.69	...	18.90	1.90	.20	1.72	23.45	45		
46	Kandi ... .. T	12,061	8	...	249	15	1	20	301	.66	...	20.83	1.24	.06	.21	23.04	46		
47	Jungpore ... .. T	11,361	...	3	304	6	8	4	324	.79	.26	20.75	.52	.70	.38	23.36	47		
48	City Moorshedabad ... .. T	46,182	78	15	1,320	102	27	77	1,625	1.68	.32	28.71	2.20	.59	1.90	35.18	48		
49	Sujakunge ... .. R	2,362	2	...	278	9	8	5	302	.89	...	122.90	.97	.53	.21	133.51	49		
50	Gorabazar ... .. R	10,291	4	...	180	7	1	18	210	.38	...	17.49	.68	.09	1.74	20.40	50		
51	Jurawan ... .. R	75,063	88	...	1,404	1	69	48	1,610	1.15	...	14.48	.01	.00	.63	21.19	51		
52	Gowas ... .. R	82,057	51	1	2,396	6	62	10	2,438	.61	.01	27.92	.10	.02	.23	29.62	52		
53	Jellinghi ... .. R	108,826	23	1	2,130	53	80	218	2,496	.21	.000	19.67	.31	.82	2.16	23.98	53		
54	Dowlatabad ... .. R	45,779	5	...	1,744	3	45	15	1,812	.10	...	38.05	.08	.98	.32	39.60	54		
55	Haidurpura ... .. R	57,704	60	...	1,077	8	42	0	1,193	1.03	...	18.68	.13	.72	.10	20.07	55		
56	Nowada ... .. R	42,404	81	...	651	70	37	116	961	1.90	...	15.33	1.78	.87	.27	23.88	56		
57	Gokura ... .. R	47,117	28	...	906	15	26	84	1,109	.69	...	20.28	.31	.55	.17	23.53	57		
58	Kallyanganpore ... .. R	42,163	27	...	1,044	39	15	102	1,227	.64	...	21.76	.92	.35	.41	23.10	58		
59	Bharatpore ... .. R	100,462	107	...	2,517	45	48	438	3,018	1.62	...	21.16	.48	.43	.00	27.07	59		
60	Shahangur ... .. R	47,061	107	...	1,462	7	...	7	1,657	.41	...	20.80	.15	.31	.15	22.91	60		
61	Samugra ... .. R	12,618	1	...	347	10	...	22	389	.97	...	22.72	.79	.71	.17	31.97	61		
62	Mut.ollabazar ... .. R	3,887	...	...	...	4	1	14	...	...	...	22.88	...	1.02	.25	24.18	62		
63	Bhadoribant ... .. R	25,951	1	...	904	...	8	6	1,000	.03	...	38.29	...	.30	.23	38.97	63		
64	Bhagwanpola ... .. R	61,178	5	...	1,273	19	43	10	1,350	.09	...	20.80	.31	.70	.31	22.21	64		
65	Rughnathkunge ... .. R	64,685	96	3	1,210	2	42	15	1,468	1.48	.04	18.73	.03	.05	.23	21.10	65		
66	Shamslerkunge ... .. R	67,142	53	3	1,763	13	18	23	1,863	.92	.06	30.67	.22	.31	.40	32.60	66		
67	Sooty ... .. R	49,549	60	...	925	8	40	6	1,023	1.00	...	18.60	.16	.80	...	20.64	67		
68	Meerjapore ... .. R	66,288	33	...	823	8	18	12	884	.90	...	22.07	.22	.49	.35	23.68	68		
69	Duwanarai ... .. R	49,122	99	3	1,192	14	18	23	1,319	2.01	.06	24.26	.28	.36	.46	27.46	69		
70	Rampotehaut ... .. R	92,748	99	2	1,625	24	16	120	1,865	.74	.02	17.52	.25	.17	1.30	20.10	70		
71	Khargram ... .. R	63,131	22	1	1,131	2	17	62											

Statement showing the results in those circles included in Districts in the Bengal Province in which the average Death rate exceeds 25 per 1,000 of population during the year 1878—concluded.

DISTRICTS.	Number.	CIRCLES.	POPULATION.	DEATHS FROM						RATIO PER 1,000 OF POPULATION.							
				Cholera.	Small-pox.	Fever.	Bowel complaint.	Injuries.	Other causes.	TOTAL.	Cholera.	Small-pox.	Fever.	Bowel-complaint.	Injuries.	Other causes.	TOTAL.
Cuttack—continued	99	Jajipore ... .. R	178,722	825	70	2,583	548	98	907	5,121	4.61	.39	14.45	3.06	.54	5.87	28.85
	100	Dhumsala ... .. R	223,009	729	36	2,429	450	97	1,350	5,321	3.26	.16	11.92	2.01	.43	6.05	23.83
	101	Aul ... .. R	108,001	482	30	1,722	354	62	776	3,385	3.99	.36	15.94	3.27	.87	7.18	31.34
	102	Jugautsingpore ... .. R	180,886	830	51	1,427	283	100	1,158	3,340	1.82	.28	7.88	1.56	.55	6.40	18.01
	103	Tirtolah ... .. R	156,004	604	28	1,525	377	124	1,054	3,712	3.87	.17	9.77	2.41	.79	6.75	23.79
Poore	104	Poori ... .. T	23,605	622	1	254	477	8	203	1,445	25.00	.04	10.31	21.01	.35	8.94	63.67
	105	Poori ... .. R	165,543	3,051	21	1,375	905	91	1,423	6,800	18.42	.12	8.80	5.95	.54	8.59	41.46
	106	Piploo ... .. R	204,876	986	20	1,801	439	87	1,545	4,893	4.80	.13	8.81	2.14	.42	7.53	23.94
	107	Gope ... .. R	88,096	359	21	673	206	59	682	2,187	3.74	.21	7.00	2.14	.21	9.04	14.75
	108	Khurdah ... .. R	237,688	2,139	33	1,289	444	117	1,597	5,519	8.99	.13	5.42	1.86	.48	6.71	23.64
	109	Banpore ... .. R	43,235	593	2	260	180	20	398	1,360	11.63	.04	6.91	3.37	.46	9.22	31.66
Balasore	110	Balasore ... .. T	17,610	88	...	186	211	18	152	600	5.28	...	10.60	11.08	1.09	8.53	37.47
	111	Balasore ... .. R	72,438	201	10	552	627	49	689	2,025	2.77	.13	7.93	8.65	.57	8.15	27.95
	112	Buata ... .. R	60,035	191	46	506	540	31	477	1,791	3.18	.76	8.42	8.80	.21	7.94	29.83
	113	Johannesore ... .. R	45,723	183	21	788	248	20	275	1,533	4.00	.45	17.23	5.38	.43	6.01	33.52
	114	Sorah ... .. R	157,444	224	66	1,228	845	78	787	3,278	1.42	.41	8.12	5.30	.40	4.90	20.82
	115	Balupal ... .. R	69,410	183	68	911	203	34	606	2,065	2.63	.27	13.12	3.78	.48	8.72	29.74
	116	Bhuddruck ... .. R	146,079	268	66	1,065	786	73	740	3,598	1.82	.44	11.33	6.35	.40	5.04	24.52
	117	Basodebpore ... .. R	62,038	23	26	621	152	27	539	1,388	.44	.40	11.93	2.92	.51	10.26	26.67
	118	Dhamnagar... .. R	114,209	441	37	1,807	497	45	364	3,191	3.85	.32	15.80	4.34	.39	3.18	27.91
	119	Chandbally ... .. R	34,550	40	14	437	123	23	141	778	1.15	.40	12.64	3.56	.66	4.08	22.51
TOTAL			5,441,530	25,037	2,613	130,438	21,591	4,641	37,084	232,004	2.80	.30	15.45	2.55	.54	4.46	26.29

OFFICE OF THE SANITARY COMM. FOR BENGAL,  
The 2nd April 1879.

J. M. COATES, M.D.,  
Sanitary Commissioner for Bengal.

APPENDIX No. III.

• STATEMENT AND MAP ILLUSTRATING THE DISTRIBUTION  
• OF CHOLERA IN BENGAL  
• ,  
•  
• DURING THE YEAR 1878.

Statement prefixed to map illustrating the distribution of Cholera in the Bengal Presidency during the year 1878.

1	2	3	4	5	6	7	8	9	10	11
DISTRICTS.	Number of sub-divisions of mortality registration.	NAMES OF THE SUB-DIVISIONS AS SHOWN ON THE MAP.	Population of the sub-divisions.	Date of first case of cholera in the sub-division as indicated by mortality.	Date of last case of cholera in the sub-division as indicated by mortality.	Total deaths from cholera in the sub-division during the year.	PERIOD OF MAXIMUM INTENSITY OF THE DISEASE AS REPRESENTED BY DEATHS.	Number of villages in each sub-division.	NUMBER OF THOUS—	
									Affected by cholera.	Not affected by cholera.
Burdwan	1	Sudder ... ..	517,876	January 1878	December 1878	981	January to June	1,270	134	1,146
	2	Culina ... ..	295,428	Ditto	Ditto	309	" " April	781	77	704
	3	Culwa ... ..	231,278	Ditto	September	529	Ditto " do.	677	91	686
	4	Road-Road ... ..	277,603	Ditto	October	293	Ditto " May	739	42	697
	5	Ranecunee ... ..	257,360	Ditto	December	366	Ditto " August	678	64	624
	6	Jhannabad ... ..	477,475	Ditto	Ditto	233	Ditto " April	1,127	44	1,083
		District Total	2,027,119			2,723		5,181	442	4,739
Bankura	7	Sudder ... ..	530,802	February 1878	December 1878	338	March to May	2,540	74	2,466
		District Total	530,802			338		2,540	74	2,466
Beerbhoom	8	Sudder ... ..	696,970	January 1878	December 1878	449	January to April	2,474	95	2,303
		District Total	696,970			449		2,474	95	2,303
Midnapore	9	Sudder ... ..	1,280,604	January 1878	December 1878	1,162	March to August	8,452	441	8,011
	10	Tumlook ... ..	467,817	Ditto	Ditto	1,001	February to May	1,561	252	1,309
	11	Coutai ... ..	412,272	Ditto	Ditto	629	February to April and December.	2,327	124	2,203
	12	Guriotta ... ..	354,186	Ditto	Ditto	319	February to May and December.	1,707	81	1,624
		District Total	2,545,179			3,111		14,035	898	13,137
Hooghly	13	Sudder ... ..	362,780	January 1878	December 1878	471	January to May	954	132	822
		District Total	362,780			471		954	132	822
Serampore	14	Serampore ... ..	363,864	January 1878	December 1878	464	January to December	846	85	761
		District Total	363,864			464		846	85	761
Howrah	15	Howrah ... ..	97,784	January 1878	December 1878	616	Throughout the year	1	1	.....
	16	Moheshreekha ... ..	635,273	Ditto	Ditto	1,293	January to May, October and December.	1,463	355	1,108
		District Total	733,057			1,878		1,464	356	1,108
24 Pargunnahs	17	Sudder ... ..	553,138	January 1878	December 1878	2,940	January to March, November and December.	874	176	698
	18	Dum Dum and Barrack-pore.	97,366	Ditto	Ditto	248	January to May, November and December.	106	38	130
	19	Baraset ... ..	275,821	Ditto	Ditto	314	January to March	772	85	687
	20	Diamond Harbour ... ..	296,698	Ditto	Ditto	1,251	Ditto to May, November and December.	1,329	216	1,113
	21	Barriepore ... ..	243,068	Ditto	Ditto	870	January to May and December.	879	116	763
	22	Busseerhat ... ..	271,324	Ditto	Ditto	751	January to May and December.	672	101	571
	23	Satkhira ... ..	397,085	Ditto	Ditto	162	January, February and April.	1,040	48	1,001
		District Total	2,151,500			6,545		5,743	778	4,965
Nudda	24	Sudder ... ..	334,076	January 1878	December 1878	1,320	January to May, November and December.	811	224	587
	25	Meherpore ... ..	307,644	Ditto	Ditto	812	January to May	488	127	361
	26	Kooshtea ... ..	387,874	Ditto	Ditto	730	Ditto ditto and December.	883	187	696
	27	Choondanga ... ..	237,428	Ditto	Ditto	650	January to May and December.	401	97	304
	28	Bongong ... ..	319,770	Ditto	Ditto	1,125	January to May and December.	746	97	649
	29	Ramghat ... ..	220,308	Ditto	Ditto	786	January to April and December.	501	40	461
		District Total	1,810,135			5,408		5,891	758	5,138
Jessore	30	Sudder ... ..	600,283	January 1878	December 1878	2,062	January to May and December.	1,374	319	1,055
	31	Jemdah ... ..	286,461	Ditto	Ditto	1,004	January to May and December.	798	168	630
	32	Magoorah ... ..	275,720	Ditto	Ditto	840	January to May	775	192	583
	33	Narail ... ..	260,043	Ditto	Ditto	446	January to April, November and December.	628	186	442
	34	Khoolna ... ..	321,001	Ditto	Ditto	796	January to July and December.	823	137	686
	35	Bagirhat ... ..	290,813	Ditto	Ditto	830	January to July and December.	733	209	524
		District Total	2,075,021			6,083		5,126	1,201	3,925

Statement prefixed to map illustrating the distribution of Cholera in the Bengal Presidency during the year 1878—continued.

1	2	3	4	5	6	7	8	9	10	11
DISTRICTS.	Number of sub-divisions of mortuary registration.	NAMES OF THE SUB-DIVISIONS AS SHOWN ON THE MAP.	Population of the sub-division.	Date of first case of cholera in the sub-division as indicated by mortality.	Date of last case of cholera in the sub-division as indicated by mortality.	Total deaths from cholera in the sub-division during the year.	PERIOD OF MAXIMUM INTENSITY OF THE DISEASE AS REPRESENTED BY DEATHS.	Number of villages in each sub-division.	NUMBER OF THOSE—	
									Affected by cholera.	Not affected by cholera.
Ferozshabad	38	Sudder ... ..	603,913	January 1878 ...	December 1878 ...	563	January to May ...	1,004	152	1,452
	37	Lalbagh ... ..	154,512	February " ...	September " ...	87	July and September ...	738	5	733
	38	Jungipore ... ..	268,047	January " ...	December " ...	340	February to May, November and December.	920	97	823
	39	Ramporehat ... ..	263,450	Ditto ...	Ditto ...	158	January to May ...	984	56	928
		District Total ...	1,349,922			1,149		4,246	310	3,936
Majumdar	40	Sudder ... ..	1,501,921	January 1878 ...	December 1878 ...	1,187	January to April and December.	7,108	274	6,834
		District Total ...	1,501,921			1,187		7,108	274	6,834
Majumdar	41	Sudder ... ..	932,433	January 1878 ...	December 1878 ...	494	January to April, November and December.	3,192	183	3,300
	42	Nattoro ... ..	378,297	Ditto ...	Ditto ...	179	January to April ...	1,101	37	1,124
		District Total ...	1,310,729			673		4,033	220	4,433
Majumdar	43	Sudder ... ..	1,708,721	January 1878 ...	December 1878 ...	8,020	January to May, November and December.	2,082	341	2,638
	44	Bhowanungunge ...	411,251	Ditto ...	Ditto ...	528	January to May, October to December.	1,221	101	1,123
		District Total ...	2,119,972			8,548		4,206	446	4,701
Majumdar	45	Sudder ... ..	689,407	January 1878 ...	December 1878 ...	730	January, April, May, November and December.	4,018	200	3,818
		District Total ...	689,407			730		4,018	200	3,818
Majumdar	46	Sudder ... ..	556,019	January 1878 ...	December 1878 ...	500	March to May ...	1,900	129	1,171
	47	Serajungunge ...	636,576	Ditto ...	Ditto ...	403	April and May, November and December.	1,492	251	1,291
		District Total ...	1,211,594			1,089		2,792	380	2,432
Majumdar	48	Sudder or Hill Territory ...	40,727	May 1878 ...	August 1878 ...	70	May to August.			
	49	Teral ... ..	47,985	May " ...	December " ...	100	May to September and December.	No villages in this district.		
		District Total ...	94,712			200				
Majumdar	50	Sudder ... ..	8,27,085	March 1878 ...	December 1878 ...	539	April to September ...	233	87	140
	51	Wadda ... ..	90,630	February " ...	December " ...	400	April to July and November.	50	31	19
		District Total ...	418,635			948		233	118	165
Majumdar	52	Sudder ... ..	994,073	January 1878 ...	December 1878 ...	1,000	January to May, October to December.	3,006	580	3,416
	53	Moonshigunge ...	400,444	January " ...	December " ...	1,057	January to May, November and December.	800	352	613
	54	Manickgunge ...	390,380	January " ...	December " ...	752	January to May, October to December.	1,078	800	773
		District Total ...	1,835,897			8,409		5,874	1,238	4,836
Majumdar	55	Sudder ... ..	611,785	January 1878 ...	December 1878 ...	1,253	January to May ...	807	305	592
	56	Goalundo ... ..	303,133	January " ...	December " ...	595	March to August and November and December.	780	133	683
	57	Madaripore ...	600,808	January " ...	December " ...	600	January to May ...	1,220	211	1,000
		District Total ...	1,515,821			2,450		2,807	649	2,250
Majumdar	58	Sudder ... ..	832,091	January 1878 ...	December 1878 ...	1,237	March to June and December.	1,541	616	925
	59	Ferozshabad ...	428,707	January " ...	December " ...	919	January to June and December.	771	306	575
	60	Puttocmally ...	448,202	January " ...	December " ...	413	March to June ...	713	300	504
	61	Dukhin Shabazpore ...	281,037	February " ...	December " ...	41	April ...	270	31	210
		District Total ...	1,835,837			2,610		3,295	1,253	2,043
Majumdar	62	Sudder ... ..	1,038,832	January 1878 ...	December 1878 ...	708	January to June ...	3,765	137	3,628
	63	Jamshadpore ...	414,400	January " ...	December " ...	873	January and February, October to December.	991	219	703
	64	Attis ... ..	536,227	January " ...	December " ...	632	January to May, November and December.	1,913	237	1,076
	65	Kishoregunge ...	383,600	January " ...	December " ...	555	January, February and December.	941	110	881
		District Total ...	2,347,108			2,628		7,600	708	6,892



*Statement prefixed to map illustrating the distribution of cholera in the Bengal Presidency during the year 1878—continued.*

1	2	3	4	5	6	7	8	9	10	11
DISTRICTS.	Number of sub-divisions of mortuary registration.	NAMES OF THE SUB-DIVISIONS AS SHOWN ON THE MAP.	Population of the sub-division.	Date of first case of cholera in the sub-division as indicated by mortality.	Date of last case of cholera in the sub-division as indicated by mortality.	Total deaths from cholera in the sub-division during the year.	PERIOD OF MAXIMUM INTENSITY OF THE DISEASE AS REPRESENTED BY DEATHS.	Number of villages in each sub-division.	NUMBER OF THOSE—	
									Affected by cholera.	Not affected by cholera.
Tipperah	66	Sudder ... ..	971,947	January 1878 ...	December 1878 ...	598	January to May and December.	4,814	221	4,593
	67	Brahmanhorla ... ..	457,282	January " ...	December " ...	894	January to April and December.	1,270	179	1,100
		District Total ...	1,429,229			1,492		6,083	400	5,683
Chittagong	68	Sudder ... ..	702,033	January 1878 ...	December 1878 ...	87	August and September	632	11	621
	69	Cox's Bazar ... ..	251,250	May " ...	December " ...	46	May and June ...	339	5	334
		District Total ...	1,043,283			143		971	16	955
Noakhalli	70	Sudder ... ..	912,755	January 1878 ...	December 1878 ...	270	December ...	2,542	170	2,372
		District Total ...	912,755			270		2,542	170	2,372
Patna	71	Sudder ... ..	522,251	January 1878 ...	December 1878 ...	563	April to September	1,540	191	1,449
	72	Dinapore ... ..	141,713	March " ...	November " ...	189	April to September	238	40	258
	73	Barh ... ..	324,786	March " ...	October " ...	159	July to September	639	40	1,569
	74	Behar ... ..	570,888	March " ...	October " ...	475	June to September	1,190	133	1,368
		District Total ...	1,559,638			1,377		4,006	404	3,602
Gya	75	Sudder ... ..	725,071	February 1878 ...	October 1878 ...	701	August and September	2,690	42	2,648
	76	Jehanabad ... ..	325,419	February " ...	December " ...	235	September and October	872	24	848
	77	Aurangabad ... ..	391,264	March " ...	December " ...	198	August and September	1,838	11	1,827
	78	Nowadah ... ..	444,906	February " ...	October " ...	90	September	1,154	7	1,177
		District Total ...	1,946,750			1,224		6,564	84	6,500
Shahabad	79	Arrah ... ..	614,940	March 1878 ...	December 1878 ...	847	June to September	1,271	70	1,195
	80	Buxar ... ..	371,039	April " ...	December " ...	142	August ...	780	94	682
	81	Sasarnia ... ..	143,703	May " ...	December " ...	715	June to October	1,007	45	1,562
	82	Blasobah ... ..	294,252	January " ...	December " ...	204	June to September	1,090	52	1,039
		District Total ...	1,723,974			1,908		4,754	262	4,497
Muzafferpore	83	Sudder ... ..	974,847	March 1878 ...	October 1878 ...	126	April, July and August.	1,857	26	1,831
	84	Hajepore ... ..	622,232	April " ...	September " ...	147	May, June and September.	1,515	22	1,498
	85	Seetampurhee ... ..	610,354	April " ...	June " ...	76	May and June ...	670	39	631
		District Total ...	2,207,433			349		4,042	92	3,950
Durbhunga	86	Durbhunga ... ..	900,234	March 1878 ...	July 1878 ...	555	April, May and June ...	2,135	75	2,060
	87	Mudhinunee ... ..	812,402	March " ...	October " ...	1,170	April to July ...	1,032	76	956
	88	Tajpore ... ..	498,954	March " ...	August " ...	171	April and May ...	708	39	669
		District Total ...	2,211,590			1,896		3,875	190	3,685
Saran	89	Sudder ... ..	1,160,451	February 1878 ...	December 1878 ...	633	July to October ...	2,090	8	2,019
	90	Sowan ... ..	894,400	April " ...	November " ...	210	August, September and November.	2,231	49	2,202
		District Total ...	2,054,851			843		4,320	120	4,221
Champuram	91	Sudder ... ..	805,054	April 1878 ...	October 1878 ...	61	June and October ...	1,150	8	1,143
	92	Bettiah ... ..	575,161	January " ...	October " ...	142	January, September and October.	1,149	20	1,129
		District Total ...	1,440,215			203		2,299	28	2,271
Monohyr	93	Sudder ... ..	750,984	January 1878 ...	December 1878 ...	1,594	March to August and October to December.	1,332	71	1,161
	94	Hogocsera ... ..	537,723	March " ...	December " ...	608	April to June and September to November.	618	89	530
	95	Junoes ... ..	524,277	February " ...	September " ...	238	April to September ...	1,345	60	1,376
		District Total ...	1,812,984			2,440		3,295	320	2,977
Bhagulpore	96	Sudder ... ..	487,716	February 1878 ...	December 1878 ...	817	March to June ...	966	109	857
	97	Bauka ... ..	381,741	February " ...	November " ...	627	April to October ...	817	95	723
	98	Muddehporeah ... ..	391,080	March " ...	July " ...	2,289	March to June ...	875	171	201
	99	Soopool ... ..	505,747	March " ...	July " ...	3,192	March to June ...	678	183	495
		District Total ...	1,766,284			6,875		2,800	554	2,318
Purneah	100	Sudder ... ..	773,310	January 1878 ...	December 1878 ...	1,583	March to May and December.	2,256	84	2,162
	101	Arracah ... ..	377,055	January " ...	December " ...	3,917	March to June, November and December.	684	246	448
	102	Kishengungo ... ..	561,430	January " ...	December " ...	1,090	March to May, November and December.	1,270	143	1,127
		District Total ...	1,711,795			6,604		4,220	482	3,747

*Statement prefixed to map illustrating the distribution of Cholera in the Bengal Presidency during the year 1878—concluded.*

1	2	3	4	4	6	7	8	9	10	11
DISTRICTS.	Number of sub-divisions of mortuary registration.	NAMES OF THE SUB-DIVISIONS AS SHOWN ON THE MAP.	Population of the sub-division.	Date of first case of cholera in the sub-division as indicated by mortality.	Date of last case of cholera in the sub-division as indicated by mortality.	Total deaths from cholera in the sub-division during the year.	PERIOD OF MAXIMUM INTENSITY OF THE DISEASE AS REPRESENTED BY DEATHS.	Number of villages in each sub-division.	NUMBER OF THOUS—	
									Affected by cholera.	Not affected by cholera.
Maldah	103	Sudder ... ..	670,426	January 1878	December 1878	520	March, April and December.	2,352	205	2,147
		District Total ...	670,426			520		2,352	205	2,147
Sonthal Per-gunnahs.	104	Dumka ... ..	201,263	February 1878	November 1878	247	March to September	2,053	117	2,594
	105	Rajmahal ... ..	190,890	January .. ..	December .. ..	195	January, March and April.	805	30	776
	106	Pakour ... ..	141,804	February .. ..	December .. ..	104	April, May, November and December.	1,107	61	1,046
	107	Deoghur ... ..	542,390	February .. ..	October .. ..	509	March to August	3,459	244	5,315
	108	Godda ... ..	205,440	February .. ..	September .. ..	602	March to August.	1,522	91	1,431
		District Total ...	1,250,257			1,506		5,546	543	9,003
Cuttack	109	Sudder ... ..	391,264	January 1873	December 1878	1,733	April to December	1,373	461	917
	110	Kendrapara ... ..	246,085	January .. ..	December .. ..	1,319	Throughout the year	1,527	423	1,105
	111	Jajpore ... ..	529,545	January .. ..	December .. ..	2,094	April to December	2,180	704	1,476
	112	Juggutsingpore ... ..	336,990	January .. ..	December .. ..	634	April to September	3,334	240	2,095
		District Total ...	1,494,784			6,080		7,410	1,828	5,583
Pooree	113	Sudder ... ..	488,751	January 1878	December 1878	4,027	January, March to September, November and December.	3,248	722	2,526
	114	Khoordah ... ..	280,923	January .. ..	December .. ..	2,642	January, March to September and November.	992	413	574
		District Total ...	769,674			7,569		4,240	1,140	3,100
Balasore	115	Sudder ... ..	422,066	January 1878	December 1878	1,076	January to August, November and December.	2,793	467	2,316
	116	Bhuddruck ... ..	347,506	January .. ..	December .. ..	772	July and August, November and December.	2,260	235	2,025
		District Total ...	770,232			1,847		5,053	702	4,351
Hazariabagh	117	Sudder ... ..	547,776	April 1878	November 1878	2,231	April to October.	5,298	286	5,002
	118	Pachanaba ... ..	224,009	March .. ..	October .. ..	213	April to September	2,712	67	2,645
		District Total ...	771,575			2,444		8,000	353	7,647
Lohardugga	119	Sudder ... ..	870,604	February 1878	December 1878	295	April to August	5,011	112	4,899
	120	Pala ... ..	366,519	June .. ..	November .. ..	310	August and September	2,697	16	2,681
		District Total ...	1,237,123			404		7,708	128	7,580
Singhbhoom	121	Sudder ... ..	293,314	January 1878	July 1878	70	January, February, April, May and July	1,061	49	1,012
	122	Dhalbhoom ... ..	113,291	March .. ..	September .. ..	46	March and April	1,213	32	1,181
		District Total ...	406,605			116		2,274	81	2,193
Manbhoom	123	Sudder ... ..	840,823	January 1878	December 1878	430	March to June	5,147	73	5,074
	124	Govindpore ... ..	154,742	March .. ..	December .. ..	233	March to September	1,220	52	1,168
		District Total ...	995,565			663		6,367	125	6,242

OFFICE OF THE SANITARY COMM. FOR BENGAL, }  
The 2nd April 1879.

J. M. COATES, M.D.,  
Sanitary Commissioner for Bengal.



APPENDIX No. IV.



ABSTRACTS OF THE INSPECTION REPORTS ON THE TOWNS  
VISITED IN 1878.

## Abstracts of the Inspection Reports on the Towns visited in 1878.

**Balasore.**—Inspected in January. The suggestions were—(1) That the repairing of roads

(1) Adopted with regard to roads on which the principal traffic is carried on.

the sanitary laws be more vigorously enforced.

(3) Given effect to.

pollution, and fouling of the khal and tanks prohibited. (4) That 12 or 15 cheap public latrines (there being none), and agency to keep them clean, be provided, the night-soil trenched, the sweepings used in filling up holes, instead of throwing both on the sides of roads, and the trenching ground cultivated. (5) That a slaughter-house be provided and a small fee levied for its use. (6) That only one or two of the six burial-

(6) Given effect to.

cremating over a considerable area prohibited, and a contractor employed to supply wood

(7) Carried out.

(8) Carried out.

prohibiting inoculation, be brought into operation.

**Midnapore.**—Inspected in January. The recommendations were—(1) That the house rates be raised and the large sums spent on the roads, which are in excellent condition, reduced, as the municipal income is very small.

(2) Carried out.

(3) Agreed to.

(4) Co-operation of District Engineer asked.

(5) Stringently prohibited.

(6) Accepted.

(7) Adopted.

latrines for males and females, provided with proper vessels, be constructed, and the Monghyr system of trenching night-soil introduced, as very little of the night-soil finds its way to the exist-

(8) Carried out.

(9) Accepted.

lime and whitewash freely used, the offal buried, and a privy built. (9) That only two of the burial-grounds and two of the burning-places be retained, a man employed at each to supervise the burial and burning arrangements, and a contractor appointed to supply wood at a fixed rate for each body brought to be burnt.

**Burdwan.**—Inspected in February. The system on which the conservancy arrangements are carried on in this town is, so far as it goes, perfect and excellent, and the greater part of the town was in admirable condition as to cleanliness and neatness. The recommendations were—(1) That the drains, which are at present rude and narrow and require active supervision to keep them clean, shallow saucer-drains be provided. (2) That the several swampy places be reclaimed in the same manner as the Kalu bhil was. (3) That the present excellent public latrine system be extended by providing cheaper latrines. (4) That the trenches in the faecal grounds be dug 12 feet wide and two feet deep instead of 6 x 4 feet, in order to make the manure more effective, and to obviate the trenches being rendered unpleasant in the rains from subsoil water. (5) That washermen be excluded from the tanks used for drinking purposes, and tanks set apart for washing cattle. (6) That the places where slaughtering of cattle is carried on be supervised, and their earthen floors dug up and relaid when offensive. (7) That cremation be limited to the two ghâts, and these ghâts placed under the sole supervision of the municipality, and registers of the bodies burnt at them kept.

(1) Will be borne in mind.

the drains, which are at present rude and narrow and require active supervision to keep them clean, shallow saucer-drains be provided. (2) That the several swampy places be reclaimed in the same manner as the Kalu bhil was. (3) That the present excellent public latrine system be extended by providing cheaper latrines. (4) That the trenches in the faecal grounds be dug 12 feet wide and two feet deep instead of 6 x 4 feet, in order to make the manure more effective, and to obviate the trenches being rendered unpleasant in the rains from subsoil water. (5) That washermen be excluded from the tanks used for drinking purposes, and tanks set apart for washing cattle. (6) That the places where slaughtering of cattle is carried on be supervised, and their earthen floors dug up and relaid when offensive. (7) That cremation be limited to the two ghâts, and these ghâts placed under the sole supervision of the municipality, and registers of the bodies burnt at them kept.

(3) No funds for this.

providing cheaper latrines. (4) That the trenches in the faecal grounds be dug 12 feet wide and two feet deep instead of 6 x 4 feet, in order to make the manure more effective, and to obviate the trenches being rendered unpleasant in the rains from subsoil water. (5) That washermen be excluded from the tanks used for drinking purposes, and tanks set apart for washing cattle. (6) That the places where slaughtering of cattle is carried on be supervised, and their earthen floors dug up and relaid when offensive. (7) That cremation be limited to the two ghâts, and these ghâts placed under the sole supervision of the municipality, and registers of the bodies burnt at them kept.

**Bankoora.**—Inspected in February. The municipal income here is too small, hence nothing can be done beyond providing for the most ordinary sanitary wants. The recommendations were—(1) That a code of bye-laws be brought into operation. (2) That the system of pucca drainage in the southern and eastern portions be extended to the rest of the town. (3) That a small fee be levied on all carts resorting to the ground near the pilgrims' serai or resting-house to keep it in order. (4) That the privies on the side of one of the five large tanks be removed, the polluting of its water otherwise prohibited, the numerous hollows containing foul water filled up, and iron buckets, attached to the wells, used generally instead of private vessels. (5) That public latrines be provided, there being none, the night-soil trenched, which is not done at present, and the

(1) Under consideration.

(2) Kept in abeyance till funds are available.

(3) Objected to, but it is under contemplation to convert the serai into a leper hospital.

(4) These privies cannot be removed as there are no other sites for them. Filling up holes is not provided for by the Act and cannot be done until the bye-laws are in force; but drinking wells have been supplied with buckets.

(5) Under consideration.

(6) Commissioners not disposed to carry out this suggestion. Care is taken to see that the offal &c., are properly disposed.

(7) Under consideration.

**Suburbs of Calcutta.**—Inspected in February. Great improvements have been effected here, but much remains to be done. The municipal sanitary laws are fairly administered. The

(1) It was decided to attend to these suggestions at once.

out early, and public latrines provided,

(2) Carried out throughout the suburbs; but sufficient ground could not be provided for the large quantity of night-soil, which has therefore to be buried in deep instead of shallow trenches.

(3) Referred to a sub-committee for consideration.

(4) Being carried out, but the process is slow.

(5) Deferred, pending the negotiations with the Calcutta Municipality for the extension of filtered pipe-water to the suburbs.

(6) Taken in hand by a sub-committee, who now refuse to register these grounds, which virtually amounts to an order for closing them.

(7) Is a work of time, but a beginning has been made with Gossain bustees.

(8) A survey to be made with a view of laying down a pipe drain from the slaughtering-yard to carry off the blood and other offensive matter.

(9) Has been removed.

which is in a most dangerous and offensive condition, be removed.

**Ranchi.**—Inspected in February. It was observed that all the suggestions made at the last inspection had, without almost a single exception, been attended to. A set of bye-laws had been framed; washing of clothes was confined to two places; the analysis of the water of all the wells had been undertaken; temporary latrines, with separate accommodation for males and females, were being erected in properly-selected sites; trenching ground was to be provided as soon as the latrines were brought into use; a place for slaughtering cattle had been provided, and street sweepings were being used for filling up hollows. The only

Carried out.

suggestion was—That the cooly depôts be provided with good water, cook-rooms, latrines, means of ventilating the

sleeping-rooms, and that their surroundings be looked after, and overcrowding prevented.

**Chyebasa.**—Inspected in February. Whatever could be done with the very limited

income of this municipality was being done. There are no bye-laws, no public latrines, and few private ones. The people resort to the fields, which are so large that no accumulation

takes place in any one locality.

**Patalia.**—Inspected in February. The recommendations were—(1) To more fully utilize the municipal sanitary laws. (2) To divert the drainage

towards the paddy-fields and ravines instead of towards the drinking and bathing tanks, which are being polluted. (3) To attach iron vessels to the public wells to be used in place of private vessels. (4) To use street sweepings in filling up

useless tanks and hollows. (5) To pay greater attention to the cleanliness of the cooly depôts and to their water-supply

arrangements. (6) To set apart tanks for drinking purposes and for washing clothes.

**Dinapore.**—Inspected in March. The great unhealthiness of this Municipality was made the subject of enquiry by a Committee appointed for the purpose. Their enquiries led them to the conclusion that, although defective drainage was the main cause of this extreme unhealthiness, imperfect conservancy, the existence of well privies and of foul tanks and jungle, the burying of the dead within house enclosures, incomplete cremation, &c., greatly helped to render the place unhealthy. The suggestions made referred to the correction of these evils. Almost all of them were attended to.

**Rungpore.**—Inspected in March. The conservancy and other sanitary arrangements, particularly drainage, of this town are very defective, and have given it a reputation for great unhealthiness, but all improvements except jungle-cutting were kept in abeyance pending the execution of a drainage scheme under which the extensive swamps in and around the

civil station will be drained. The suggestions were—(1) To introduce proper conservancy arrangements and dispose of night-soil on the Burdwan system, providing cheap in place of costly latrines. (2) To import mehters from other districts, as the local supply is insufficient. (3) To get the Mahomedan community to select one or two burial-grounds, and then to strictly prohibit promiscuous burying, and place a

man in charge of the grounds to supervise the burial arrangements. (4) To confine cremation entirely to the selected

(1) Will be attended to on arrival of mehters from Allahabad.

(2) Application made to Allahabad.

(3) Decided that 50 biggas of land be taken up for three burial-grounds for Mahomedans and one for Hindu children and Byragoes.

(4) Arrangements made to carry out these suggestions.

burning ghâts, and to employ a contractor to supply the wood required. (5) To gradually clear the tanks, and set apart some for washing of clothes, animals, &c., and some for drinking purposes only.

(6) Attended to.

**Chittagong.**—Inspected on 11th March. This municipality was in a most filthy condition: almost all its sanitary arrangements were defective. The points to which attention was drawn were—(1) By a redistribution of the income to allot a larger sum for sanitary works. (2) The charge of maintaining roads to be made over to Road Cess Department. (3) Municipal latrines on the banks of some of the tanks to be removed. (4) The whole question of water-supply to receive immediate attention, the existing arrangements being deplorably bad. (5) Conservancy arrangements to be improved, and either the Burdwan, Suburbs of Calcutta, or Howrah system adopted. (6) Burial arrangements, already under consideration, to be placed on a satisfactory footing, burial-grounds reduced in number, promiscuous burials prohibited, and crowded grounds closed. (7) Clothes and pillows of deceased Hindus to be burnt, and the throwing of half-consumed bodies into Chaktea nullah prohibited.

**Cuttack.**—Inspected in March. The suggestions were—(1) A larger proportion of the

(3) Undertaken in the eastern half of the town, and to be soon carried out in the rest.

(4) Kept in abeyance until the drainage scheme is completed.

level high enough to distribute it

(5) The conservancy arrangements were put on a better footing, but question of providing public latrines was not finally settled.

pality, resort to banks of rivers prohibited, and night-soil trenched. (6) Existing burial-grounds

(6) Put in hand.

to be closed with the consent of the Mahomedan community, and two new municipal ones provided. (7) The burning arrangements to be regulated, and a contractor appointed to supply wood for burning, as cremation is very imperfectly done at present.

**Bogra.**—Inspected in April. The suggestions were—(1) Bye-laws to be framed and brought into operation. (2) Cheap public latrines to be gradually introduced, as there are none and the people defecate

(1) Since passed.

in any convenient place, and the night-soil be trenched. (3) Burning ghâts and burial-grounds to be provided, burial in the compound of houses prohibited, disposal of pauper dead undertaken by municipality, graves dug sufficiently deep, cremation completely carried out, and a contractor engaged to supply fuel, &c., for burning the dead.

**Bhagulpore.**—Inspected in August. The recommendations were—(1) To expend a fair proportion of the income on sanitary works. (2) To reduce further the cost of the municipal establishment, in order to provide funds for sanitary works. (3) To close absolutely all well-prives as, being deep as the wells, there is every reason to believe that they are the cause of the sewage contamination, the presence of which was detected by Dr Warden when he analyzed the well water, and to regulate public latrines in a better manner. (4) All wells that are found to be largely contaminated with sewage matter to be closed, and

(5) The Commissioners are not prepared to undertake any large scheme, but an experiment is to be made in the Marwhee quarter of the town. Latrine arrangements in ward No. 2 are to be systemized, and public latrines, carts, bullocks, drivers, and buckets provided.

(6) Awaiting Civil Surgeon's report on burial-grounds. Burning ghâts are to be marked out and placed in charge of police. A contractor has been invited.

the people urged to use the purer water of the river. (5) Private latrines to be cleaned by municipal mehters and a fee charged. (6) The number of private burial-grounds to be still further reduced, the throwing of corpses into the river put a stop to, and a contractor appointed to supply fuel for burning the dead.

**Darjeeling.**—Inspected in September. The scheme for supplying spring water to the station has again been altered. It is now proposed to abandon the proposal of bringing water from the springs in the Senchal hill, and to select 10 springs in the hill above the old road from Jorobungalow to Sonada. The suggestions were—(1) To utilize more fully the municipal sanitary laws. (2) To introduce Act VI (B.C.) of 1878 in order that the private latrines may be more effectually controlled. (3) To employ a trained Inspector to supervise conservancy arrangements, to have the private latrines cleaned by municipal mehters, to charge a fee for doing so, and to prohibit the burial of night-soil in compounds of houses and promiscuously.

**Hooghly and Chinsurah.**—Inspected in December. Many of the sanitary arrangements in this municipality are satisfactory. The roads, culverts, and side-drains were in good and creditable condition, and well looked after. The conservancy arrangements were, on the whole, very satisfactory, indicating that great advance had been, and steady progress was being made. A very excellent set of rules, worthy of imitation generally, for the systematic and effectual supervision of the burning ghâts and their arrangements, and for the complete cremation and registration of all bodies brought to the ghâts had been framed and put in force. In fact, the Magistrate, the Civil Surgeon, and the Commissioners are working well and harmoniously in advancing the sanitation of the town. The suggestions were—(1) To expend a more liberal portion of the municipal income than 13 per cent. on the sanitation of the town. (2) To introduce Parts VII and IX of the Bengal Municipal Act. (3)

To make all future drains wide and shallow or saucer-shaped. (4) To construct all new latrines on a better plan and provide them with proper vessels. (5) To introduce Act VI (B.C.) of 1878, so that legal control might be exercised over the private privies, the municipality collecting the fees paid to municipal mehters for cleaning private privies. (6) To cultivate the trenching grounds. (7) To close the many small burial-grounds against further burial.

**Serampore.**—Inspected in December. The suggestions were—(1) To allot a more liberal proportion than 18 per cent. of the municipal income for the sanitation of the town. (2) In improving the drainage, to adopt Mr. Fellow's plan, which consists of making a continuous ditch along Ryland's road parallel to the railway, towards which all drains not running into the river are to be emptied, and causing the main drain to empty itself into the bazar khali. (3) To remove systematically the great amount of jungle about the town. (4) To provide more cheap public latrines with proper vessels and stop promiscuous defecation. (5) To introduce Act VI (B.C.) of 1878, to enable the municipality to undertake the cleansing of private latrines, and to do away with well-privies and other objectionable private latrines. (6) To prohibit burials in compounds of houses. (7) To repair and look after the resting-houses on the Grand Trunk Road. (8) To provide latrines for the large number (about 20,000) of people who work at the mills, and to levy about a pice a month for each man from the mill owners, for the construction and maintenance of the latrines and for medical assistance to the sick of these people, which is at present met by Government and the municipality.

**Howrah.**—Inspected in December. The Commissioners take much interest in improving the sanitary condition of this town, and praiseworthy progress has been made. The only points to which attention was directed were—(1) To use tarred gumlahs for removing faeces in the public latrines, and to cultivate the night-soil ground. (2) To take up more land for the burial of the Mussulman pauper dead. (3) To introduce the Contagious Diseases Act, as there are many prostitutes, most of whom have gone from Calcutta to escape being subjected to the provisions of that Act.

**Patna.**—Inspected in December. The conservancy system, public and private latrine arrangements, manner of disposing night-soil, &c., of this municipality are very satisfactory. The recommendations were—(1) More of the income than 21 per cent. to be allotted for sanitary works. (2) Encroachments on certain roads to be prohibited, and the widening of the roads continued. (3) The Bankipore Canal, which drains the north end of the town, to be continued along the chain of wheels which adjoin the railway, and made to fall into the Ganges, connecting each pond in its track, the wheels to be deepened and cleared of *débris* year by year, so that when the obstructions are removed, the water from the Bankipore Canal might in the rains run round the east of the city and clear its foulest stagnant pools which are used as latrines, remove much filth, carry away the foul water and secure better drainage. (4) The dry-earth system of disposing night-soil to be extended to other parts of the town, and well-privies done away with. (5) The margin of the new tank, Shaik Mutteh Gûrhi, to be manured with the compost obtained under the dry-earth system above referred to, and cultivated so as to induce the people to purchase the *poudrette* for their opium fields or produce gardens. (6) More of the existing grave-grounds to be closed and allowed to fall into decay as soon as the *fakirs* cease to guard them.

**Araah.**—Inspected in December. The suggestions were—(1) A larger proportion of the municipal income than 16 per cent. to be allotted to sanitary works. (2) Municipal laws to be better utilized and Act VI (B.C.) of 1878 to be introduced. (3) The encroachments on the narrow lanes to be removed. (4) The deep obstructed drains to give place gradually to shallow ones. (5) The conservancy arrangements to be improved, cheap public latrines with gumlahs, and separate accommodation for males and females, constructed, the well-privies done away with, private privies cleaned by municipal mehters, and a fee charged for doing so. (6) The night-soil to be trenched, ground being provided for the purpose, and the ground cultivated when manured.

**Buxar.**—Inspected in December. The recommendations were—(1) To allot a larger proportion of the municipal income to sanitary works. (2) To utilize the sanitary provisions of the municipal laws which, although introduced, are inoperative, and to introduce bye-laws. (3) To prohibit encroachments on bye-lanes. (4) To rectify the drains in streets to and from bazar and in bye-lanes, as the drainage is very defective. (5) To provide public latrines at the canal works, the market, and the outcherry; to have the private latrines cleaned by municipal mehters, and to levy a fee for doing so. (6) To bury or burn the corpses, instead of throwing them into the river.

**Chupra.**—Inspected in December. The suggestions were—(1) To devote a more liberal proportion of the municipal income than 11 per cent. to sanitary works. (2) To prohibit encroachments on the streets. (3) To clear *débris*, &c., from some of the obstructed drains, and make all future drains saucer-shaped. (4) To construct more public latrines, have the private latrines cleaned by the municipal mehters, levy a fee for doing so, carry out the sanitary arrangements in a more systematic and careful manner by the introduction into the municipality of Act VI of 1878, and by the more



energetic application of the sanitary clauses of the Bengal Municipal Act and of the bye-laws when sanctioned, establish trenching grounds for the night-soil, there being none at present, and cultivate these grounds when manured. (5) To select the best of the wells and set them aside for drinking purposes, and systematically fill up the many pools of stagnant water about the town. (6) To prevent the burying of corpses in the compounds of houses or along the roadsides, limit burials to the five existing burial-grounds, provide an incenerator for the burning of the pauper dead and the bodies of those dying of infectious diseases, prohibit the throwing of corpses into the river, fix upon burning sites, register them, and prevent promiscuous cremation, and engage a contractor at each burning-ground to supply fuel required for burning and to keep a register of the bodies brought to these places and also to the burial-grounds. (7) To improve the sanitary condition of Kurrim Chuck, reported to be the most unhealthy part of the town.

J. M. COATES, M.D.,

Sanitary Commissioner for Bengal.

The 2nd April 1879.

# FINANCIAL DEPARTMENT.

## SANITATION.

CALCUTTA, THE 24TH JUNE 1879.

### RESOLUTION.

Annual Report of the Sanitary Commissioner for Bengal for the year 1878.

Read also—

Note on the progress made in birth and death registration in British India by the Sanitary Commissioner with Government of India, dated 28th April 1879, forwarded under cover of Home Department's circular No. 5—121, dated 16th May 1879.

The eleventh Annual Report of the Sanitary Commissioner is submitted in the curtailed form prescribed by the Secretary of State in his despatch of the 27th June 1878. The usual sections on Meteorology, the European Army, the Native Army and Jails, are accordingly omitted.

2. The fifth section of the old form therefore virtually becomes the first of the

Vital statistics.

present report and is devoted to the vital statistics of the province. In this respect also there is a considerable change from the report of last year, viz. in the registration of births. This Government, in paragraph 19 of its resolution on the report for 1877, directed the discontinuance of the registration of births as being too imperfect, and of too little service to warrant its continuance. The Government of India, however, in acknowledging the report and resolution, requested a reconsideration of these orders, and it was accordingly directed that births should be registered in all first-class municipalities. As a fact, however, they have been registered in 51 second-class municipalities and 13 unions, besides the 25 first-class municipalities. Hence the births among a population of 2,314,625 only (according to the last census) have been registered this year against the births among a population of 58,281,453 last year. As regards the registration of deaths, however, there has been no practical change; the mortality has been registered of a population, according to the last census, of 59,998,435 against 58,305,332 in 1877.

3. The births registered were 1,785 still-born and 45,288 born alive, giving a ratio of 19·56 per mille. Although the female population in the towns under registration is

Births.

only estimated at 47·5 per cent., and consequently some reduction in the birth-rate is to be expected, still it is evident that the number registered can hardly exceed half the number of actual births. Even in Calcutta, where the organization is so much more complete, it is found impossible to obtain correct, or even approximately correct, birth statistics. It is useless therefore attempting to make any use of these figures as a whole. It appears, however, that among the 89 towns in which births were registered, six registered over 40 births per mille, including one (Jamalpore) in which the births reached 55·67 per mille. As births are undoubtedly more numerous proportionately in the rural tracts, it seems probable that 50 per mille would not be at all too high a rate for the province as a whole; in fact, looking to the enormous mortality among children in the first year, referred to below, the rate can hardly be less in a normal year.

4. The registered deaths only amounted to 17·73 per mille, but in

Deaths.

judging of the value of this record, a wide distinction must be drawn between urban and rural registration. In 429 urban circles the ratio of registered mortality was 35·13 per mille, while in the 1,295 rural circles it was only 17·01. The urban registration shows an increase upon last year, when the rate of recorded

deaths was only 32.49 per mille, but rural registration fell off from 17.01, and consequently, owing to the vast preponderance of the rural the urban populations, the rate of mortality registered over the whole province declined from 17.96 to 17.73.

5. This is the first year in which there has been a decline, the ratio having gradually risen from 3.92 per mille 1870 in the registration of deaths in 1878. to 17.96 in 1877. Dr. Coates seems unwilling to admit that there can have been any real falling off. Paragraphs 69 and 70 of last year's report indicated such special and exceptional exertions on behalf of the Magistrates and District Superintendents that apparently very different results were anticipated, and accordingly the Sanitary Commissioner contends that the diminished registration is solely due to the termination of the cholera epidemic in Chittagong, Noakholly and Backergunge, where the registered deaths from that scourge were only 3,023 in 1878 against 49,733 in 1877. As this gives a difference of 46,710, and the falling-off in registered deaths in the whole province only amounted to 13,485, there is under other heads and in other districts a considerable increase.

6. This argument is valid so far as it goes, but it loses sight of the consideration that there is every reason to suppose that while cholera was less prevalent in 1878 than in 1877, the former year was on the whole much the more unhealthy of the two, and the aggregate mortality in it was greater. This is certainly the general impression based upon the wide-spread prevalence of fevers of a malarious type, and it is fully borne out by the statistics of registration where they can be relied upon. Thus, in Calcutta the registered mortality in 1878 was 38.1 per mille, as against 31.9 per mille in 1877, and this in spite of deaths from cholera having declined from 1,418 to 1,338. In the suburbs the registered mortality was 66.94 per mille, against 62.38 in 1877, cholera, however, increasing from 2,018 in 1877 to 2,364 in 1878.

7. Still more to the point, however, is the evidence of the mortality in jails, cantonments and lunatic asylums, as these are spread over the province, and therefore furnish a test to a certain extent of the death-rate in all parts of the Lower Provinces. In jails the average mortality in 1878 was 71.7 per mille on average strength as against 50.6 per mille in 1877, in cantonments 30.85 per mille in 1878 against 24.25 per mille in 1877, and in lunatic asylums 95 per mille in 1878 against 65 per mille in 1877. These statistics, all converging as they do to the same conclusion, and corroborating the *a priori* probability that high prices would conduce to an anemic condition among the poorer classes with fixed incomes, and especially among the very old or very young and pauper community, seem to the Lieutenant-Governor almost decisive in proof of an increase of general mortality in 1878 as compared with 1877, and show that accurate registration in the rural circles has fallen off relatively much more than it has done absolutely.

8. Indeed this result need not cause any surprise looking to the very inadequate machinery available for rural registration and to the influences on which its success has to depend. The primary registrars are with very few exceptions the village chowkidars, over whom especially in all the smaller villages not brought under Act VI (B.C.) of 1870, the district officials can exercise but a very slender control. When a stir is made by the Magistrate or the District Superintendent, a certain portion of the chowkeedars, the more amenable to influence, exert themselves and bring in returns approaching to correctness; others, however, especially those who receive no regular pay, cannot be brought to exert themselves. Up to a certain point if the pressure from above is sustained, improvement will continue; but after reaching the point at which it becomes apparent that little if anything results from their exertions, the zeal both of officials and subordinates must decline. Thus it is almost evident that where registration is not compulsory, and where the chowkidars are badly and irregularly paid, registration can only be brought up to a certain point after which further progress will necessarily be very slow.

9. It cannot be expected that rural registration in the Lower Provinces will attain even to the approximate accuracy, which is reached in the Central Provinces, or even in the Panjab or North-Western Provinces. The village machinery in Bengal, and the hold of Government officials over this machinery, is

infinitely weaker than in temporarily settled provinces. The only part of Bengal which at all corresponds with the Central Provinces in this respect is Orissa, where the greater part of the land is temporarily settled, rent suits are still decided by the Collectors, chowkidars have service lands and patwaris and canongoes are general, and though Orissa is in many respects a backward province, and the conservative tendencies of the Ooriyas might be expected to prove unmanageable, it is precisely in these districts that rural registration is least imperfect. In Appendix II, the Sanitary Commissioner gives the full details of registration in all those districts in which the ratio of registered mortality exceeds 25 per mille, as prescribed in paragraph 13 of the Government Resolution of the report for 1877. The seven districts which fall under this category are Hooghly, the 24-Pergunnahs, Moorshedabad, Patna, Cuttack, Pooree, and Balasore, that is, all the three temporarily settled districts and but four out of the remaining districts in Bengal. If, however, the figures are analysed the result is still more decisive. In all the four districts first named the average is largely due to the populous and numerous towns in which registration is on a better footing. Omitting these towns rural registration *per se* declines to—

Hooghly	...	...	...	...	24.09 per mille.
24-Pergunnahs	...	...	...	...	19.88 "
Moorshedabad	...	...	...	...	24.73 "
Patna	...	...	...	...	23.35 "

or in no single case above 25 per mille, whereas excluding the urban registration in Orissa, it is found that—

Cuttack registered...	...	...	...	...	26.67 per mille.
Balasore "	...	...	...	...	26.10 "
Pooree "	...	...	...	...	28.02 "

so that it is eventually ascertained that the only districts which in their rural circles registered over 25 per mille are the three temporarily settled districts of Orissa.

10. In other provinces the results of rural registration for 1877, the latest year the reports of which have been received, were—

Berar	...	...	...	...	27.9
Central Provinces	...	...	...	...	23.08
Punjab	...	...	...	...	19.
North-Western Provinces and Oude	...	...	...	...	18.99
Burmah	...	...	...	...	15.03
Assam	...	...	...	...	10.6

Thus if 1877 is a fair test of 1878 in other parts of India, the statistics of rural registration in Orissa need fear comparison with no other province in the British Presidency.

11. It should also be remembered that looking to the objects of registration, it is much more important for the present to secure an approach to accuracy in towns than in the country. One of the chief objects of correct registration is to draw the attention of the Government officials and of the more intelligent residents, to the insanitary condition of places where mortality is exceptionally high, and thus as far as possible to remedy the evil; or as the Sanitary Commissioner with the Government of India expresses it, in reviewing the results in 1877, "the object of registration is to localise disease so that the causes which produce it may be sought out and if possible removed; to bring to the notice of the people any excessive mortality occurring so that they may be impressed with the importance of bestirring themselves in sanitary reform." But while this object is to some extent attainable in towns, it must be for many years to come, altogether unattainable in the interior. In the case of a town, the area which forms the unit of registration is comparatively small, the town itself is regulated by sanitary rules of more or less efficiency, it has a governing body to enforce these rules, and municipal funds to admit of carrying out improvements. If it is shown therefore that any particular town is exceptionally unhealthy, some good effect may reasonably be looked for.

12. On the other hand, the rural units of registration are almost always thannas extending over areas of from 100 to 300 square miles, and containing

from 200 to 600 villages; in each of these villages nothing is done, nothing can be done for sanitation except by the spontaneous adoption of improved habits among the people. If registration were sufficiently accurate to prove that in any thanna the mortality had been excessive, little or nothing would have been thereby gained. It would still be a matter of difficulty to ascertain to which villages of the thannah the excess was due; and even if this were ascertained, there is hardly a village in Lower Bengal, the sanitary arrangements of which would not be condemned in *toto* by an inspecting officer; and the carrying out of his most elementary recommendations would cost more than the heaviest rate imposed upon the village and devoted to this sole purpose would realize, even were such a measure possible. There is no staff of officers to superintend the work, no village authority that could be relied upon to enforce attention to orders. As the Sanitary Commissioner with the Government of India remarks: "The Government can never cleanse India by any legislative enactment or remove the many defects which more or less affect the inhabitants of every town and village throughout the country. This must be the work of the people themselves acting individually and through municipalities"; and where there are no municipalities, and individual action has to be relied upon, it must evidently be a work of time and education.

13. It is therefore gratifying to observe that registration appears to be much more accurate in the towns. Deaths are at present registered in 93 municipalities and unions,

containing a population of 2,370,803 inhabitants and the rate of deaths registered in them as a whole was 35.13 per mille. The rate in Calcutta during the same period was 38.1, and if the death-rate in provincial towns is not on the whole greater than in Calcutta, a fair standard of accuracy would appear to have been attained. Of these 93 towns however, 11 registered less than 15 per mille, and 5 more registered between 15 and 20 per mille; the registration in the former must have been, and in the latter probably was defective. If these are omitted the average would be raised to very nearly the rate recorded in Calcutta.

14. In other provinces of the Bengal Presidency the death-rate registered in towns in 1877 was as follows:—

Central Provinces	...	...	...	...	35.86
Burmah	...	...	...	...	34.73
Punjab	...	...	...	...	33
Assam	...	...	...	...	32.3
Berar	...	...	...	...	31.4
North-Western Provinces and Oude	...	...	...	...	29.43

15. It appears therefore that in all parts of the country either towns are much more unhealthy than villages, or urban registration is much more perfect. Looking to the accuracy said to have been attained in the Central Provinces, it appears probable that if registration could be improved in the few towns referred to above, in which it is still defective, urban registration in Bengal might be considered to be fairly correct.

16. The more the prospect of obtaining accurate registration in towns and municipalities appears attainable, the more important it becomes to test these figures and detect the points in which they are still imperfect; more especially it appears desirable to do this as regards the ages and sexes of persons recorded as deceased. The tables at present appended to the report are Form II, sexes of the deceased; Form III, months in which deaths are recorded; Form IV, ages of deceased persons; Form V, classes. In each of these forms the figures are for the whole province, rural and urban circles being combined. Form VI shows the causes of death, and in this form only the rural and urban circles are shown separately. Hence there are no materials in the report for ascertaining to what extent infant mortality has been registered in towns, and how far the relative mortality as regards the sexes is reasonable and probable. It seems to the Lieutenant Governor that as the urban statistics are evidently far more accurate than the rural, and also, as accuracy in them is of more importance, it would be advisable to exhibit next years urban circles and rural circles separately as regards age, sex and class.

17. Taking the figures for Bengal as a whole, the mortality among males was 20.00 per mille and among females 15.47, while the percentage of deaths among children below one year of age to total deaths was 12.75. As the experience of 20 years in England gives about 20 to 18.35 as the relative mortality of males and females, and 24.23 as the percentage of deaths under one year to total deaths, this would seem to indicate defective registration as regards female and infant mortality. As it is far from certain that the proportion of living males to females is as great in England as in India, the inference regarding female mortality is not very decisive, but so far as infant mortality is concerned the subject well deserves special attention. Dr. Payne has clearly shown from the statistics of Calcutta that, in this city at any rate, the extent of infant mortality is appalling. He calculates the ratio of deaths under one year to births at 320 per mille in 1876, 348 per mille in 1877, and 364 per mille in 1878, this being exclusive of children born dead. Moreover about half of these deaths occur within 15 days of birth. The causes of this mortality which is peculiar to native children—European infants not dying at more than one-fourth of the above rates—are fully discussed at paragraphs 18 to 34 of his report as Health Officer of the municipality for 1876. On the other hand, it is admitted that were it not for the marvellously injudicious treatment of infants, the climate of India would be more favourable to infant life than that of England. If, as is supposed, registration in the Central Provinces is accurate, the mortality there during the first year of life is 147 per mille boys and 143 per mille girls, or an average of 145 per mille, which is not very different from the English rate.

18. It would be very interesting if the Sanitary Commissioner could obtain figures in some of the municipalities where registration is most reliable, which would show whether infant mortality in mofussil towns at all approaches the excessive rate in Calcutta.

Places which recorded the highest mortality.

19. The places that recorded a mortality above 4 per cent. during the last two years are shown below, together with the death-rate per mille in each :—

1877.		1878.	
Suburbs of Calcutta	62.38	Sorampore	81.01
English Bazar	61.66	Suburbs of Calcutta	66.94
Sorampore	56.99	Pooree	63.67
Pooree	50.09	English Bazar	52.64
Pubna	46.59	Jajipore	51.70
Chittagong	43.68	Purulia	50.73
Dinapore	41.21	Kendrapara	50.75
Kishoregunge	41.13	Darjeeling	49.73
Rajahmundry	41.04	Hazareebagh	49.04
Cuttack	40.49	Gya	46.43
Kendrapara	40.44	Mokameh	46.19
Nyehatti	40.33	Ranchi	45.83
North Suburban Town	40.03	Purneah	45.58
		Jamalporo	44.58
		Burhea	44.40
		Revilgunge	43.30

It is remarkable that, while the same four towns are found at the top of the list in either year, no other town occurs in both lists except Kendrapara.

20. In Pooree the heavy mortality might be expected; cholera alone carried off 23.66 per mille in 1877 and 23. in 1878, being more destructive there in either year than in any other town in Bengal. The fever rate was comparatively low, 5.68 in 1877 and 10.31 in 1878. The cholera mortality in this city brings out most prominently the evil effects of the pilgrim traffic in propagating this disease, and fully justifies the efforts made in other large towns along the route, *e.g.*, Cuttack and Midnapore, to divert the traffic and prevent the stream of pilgrims entering the towns.

21. In English Bazar cholera was destructive to life in 1877, but not so to any extent in 1878, the ratios being 14.85 and 1.08. Fever, on the contrary, caused a mortality of 24.65 in 1877 and 39.89 in 1878. Neither of these municipalities was visited by the Sanitary Commissioner either in 1877 or 1878, and Dr. Coates should take an

early opportunity of inspecting them, especially the latter, and ascertaining, whether the excessive mortality can be traced to any special and preventable causes.

22. In Serampore 4.00 per mille of the deaths are due to cholera and 29.04 to fevers in 1877, and 5.60 to cholera and 42.63 to fever in 1878. In either year bowel complaints also contributed considerably to the mortality. The town was inspected by the Sanitary Commissioner in December 1878, and a copy of his report has been received by Government. He recommends the extension of Act VI (B.C.) of 1878 to the town, empowering the Commissioners to control public and private latrines, a recommendation which the Lieutenant-Governor is glad to see has been accepted by the Municipal Commissioners. As regards drainage a survey is being made, pending which he declines to make any positive recommendation, but inclines to favour a scheme by Mr. J. J. J., the late Magistrate of Hooghly, which is now under consideration. The following extract from his report acquires a special interest, looking to the fearful mortality that has occurred during the year:—"The action of the Municipality in regard to drainage is greatly hampered by important drains being claimed as private property and forthwith closed, thus rendering litigation and much expense necessary, which hitherto has ended in the decision of the Courts being in favour of the owners. The decision in favour of Tariny Churn Bose has led to Rishra and Mohesh remaining undrained, which is the cause of much sickness in those localities." As regards private latrines Dr. Coates describes them as being very bad, and remarks that it is "surprising that such unhealthy and disgusting arrangements should be allowed to continue." The Lieutenant-Governor hopes that the Commissioners will give their best attention to this subject, which is believed to be now under their consideration; in many respects it must be admitted that they have done much for the town.

23. The mills in Serampore have attracted about 20,000 workmen, and Dr. Coates recommends that attention be paid to the improvement of the sanitation of their huts. The collection of this large number of laborers, however, suggests another and more hopeful solution of the heavy mortality in Serampore, viz., that the population has materially increased, and that the recorded deaths represent a mortality among over 40,000 persons, instead of the 24,440 shown at the last census. It may well be that in many of the smaller towns the population has increased so much since the last census that the retention of these figures as the basis of the mortality rate must be deceptive.

24. The excess mortality in the suburbs of Calcutta, as compared with the town of Calcutta, has for some time attracted attention, and the present year, in which the Calcutta death-rate was 38.01, and that of the suburbs 66.94, is no exception to the rule. Of this, cholera, which is debited with a ratio of 7.84 per mille in 1877, caused 9.19 in 1878, while fever is shown as causing 26.09 and 30.77 in these two years. Looking to the great similarity between the populations of Calcutta and the suburbs, their habits, their occupations and the climate in which they live, it would certainly seem that the sanitation of Calcutta, whatever its faults, has done much to benefit the town, and that to its drainage and water-supply it owes the undoubted fact that year by year its mortality is more than one-third less than that of the suburbs.

25. The comparative uniformity as regards the period at which the greatest and least mortality occurs is sufficient to justify the conclusion that it is not very well established that the beginning of the cold weather is the most unhealthy time of the year in the Lower Provinces. This year, as in the preceding year, and also in the average of the five preceding years, December was the month of highest mortality. April came next to it and then January, instead of November as in the preceding five years, but November came fifth; and in both years and in the average of years it is found that the mortality falls in January and February, increases in March and April, then decreases to July, when it rises a little to the end of September and then very rapidly in October, November and December.

26. In paragraphs 8\* to 10. of the report, the Sanitary Commissioner explains the measures that are being taken to improve registration throughout the country both by his office and by the local officers. The measures adopted by Captain Ramsay, District Superintendent of Patna, are specially commended and are described as follows:—

“But of all the schemes to improve registration, the one most worthy of notice and of general adoption is that which was inaugurated at Patna by Captain H. M. Ramsay, the District Superintendent of Police, who paid great attention to the subject, and whose services deserve acknowledgment. For the purpose of ascertaining the geographical prevalence of disease in Patna, Captain Ramsay divided the police stations and outposts into beats and placed each in charge, as far as possible, of 20 chowkeedars. In order to utilize this arrangement for the purpose of improving registration, he instituted an index or table, showing the names of the chowkeedars in each beat, the number of houses in charge of each, the number of deaths reported by him, and the percentages of deaths reported from every 100 houses. On the supposition that each house contains five persons, he calculated that the percentage of deaths in every 100 houses represents the number of deaths among 500 persons, and that his number of deaths multiplied by two shows the ratio of deaths per 1,000 of the population. Thus say 36 deaths are reported to have occurred in 120 houses:—

Deaths per 100 houses of 500 persons.	Deaths per 1000 of population.
--	-----------------------------------

$$36 \times 100 \div 120$$

...

...

$$= 30 \times 2 =$$

$$60$$

After inspecting a station or outpost, Captain Ramsay prepares this table, arranging in it the names of the chowkeedar in order of merit, that is in accordance with the number, highest to lowest, of deaths reported in proportion to the number of houses in their charge respectively, and having paraded the chowkeedars, he asks those who have been remiss or careless in reporting deaths, as ascertained from his table, if their own conscience does not tell them whether he is right or wrong in imputing neglect to them. This procedure has been found to have great effect on the men and has tended to make them more careful in the discharge of this portion of their duty. If other Superintendents of Police would only interest themselves in this manner, registration in Bengal would not compare so unfavorably with those of the other provinces of India. The world will have statistics, and we may as well adopt means of getting them as perfect as possible.”

27. It must not be lost sight of that the primary and essential duty of the Police is the prevention and detection of crime and the maintenance of order, and if they see the District Superintendents paying more attention to mortuary statistics than to their more normal duties, the importance of the latter may unduly suffer by the relative prominence given to the former. But even if it is assumed, as is perhaps fair, that the attention which Captain Ramsay bestows on his regular Police duties, when inspecting thannas and outposts, is such as to prevent the possibility of any such misconception, still it seems open to question whether the system is not overdone. However true it may be that a tolerably regular death rate will be found to occur over large bodies of persons, and taking a year as the unit—and even then great fluctuations are observable—this can hardly be applied to small bodies and short periods. Captain Ramsay probably visits each station about twice a year and the population under each chowkeedar would not exceed 80 to 100 houses. It can scarcely be expected that the mortality among some 500 persons every six months will be so regular as to make it safe ‘to appeal to the conscience’ of any chowkeedar whose deaths fall short of the required ratio. It may be remarked also that the statistics of the Patna district at the census of 1872 gave a population of 5.78 per house, or much nearer 6 than 5, the figure adopted by Captain Ramsay.

28. Dr. Coates again urges the desirability of the wages of the chowkeedars being paid into the treasury and issued to them through the District Superintendent of Police. Of the benefit of this proposal, so far as increasing the hold of the Police over the chowkeedars is concerned, there cannot be two opinions, but the Sanitary Commissioner does not point out how it is to be effected. In regard to villages brought under Act VI (B.C.) of 1870, the punchayets appoint the chowkeedars, collect their wages, and by section 43 of the Act also pay them. In villages not under that Act the chowkeedars collect their own wages so far as they can. The Magistrate has no legal authority to enforce payment, and if the chowkeedar has once collected what he can, nothing would be gained by requiring him to pay it into the treasury and draw it out again.



29. It must not, however, be supposed from these comments that the Lieutenant-Governor in any way depreciates the advantage of obtaining correct statistics, for that he would do otherwise than approve and encourage all well-considered, well-sustained and practicable measures for effecting this object. He cannot, however, shut his eyes to the mischief done by basing conclusions on utterly unreliable statistical returns. As regards the possible falsification of returns in paragraph 12 of the Resolution on the report for 1877, the Sanitary Commissioner was directed to give his best attention to this question, and to report upon it this year. In paragraph 12 of this year's report, Dr. Cones states that all districts except seven have replied to his enquiry on the point, and that—

The replies from the rest show that no instances of falsification have been known to have occurred. Some of these reports state moreover that, on the contrary, several are the cases in which omissions to record deaths have occurred, that errors of diagnosis are frequent, and that in districts where the reports of the chowkedars are checked by returns furnished by punchayots, village-headmen, putwaries and others the danger of detection is great. At Durbhunga, however, it was detected in a case of criminal prosecution that the name of a deceased person had been altered in the registers; the object was to show that the death of a person supposed to have been murdered had been reported in due season.

30. This is satisfactory as far as it goes, but it would have been more so if the report had explained the nature of the enquiry made by the local officers to test the returns. If they merely relied on the fact of hearing of no such cases, the absence of any evidence to the falsity of the returns would not be worth much. Obviously, where no one is injured by false, imaginary, or double entries of deaths many years might elapse before attention would be drawn to the subject. If in some of the rural and urban circles in which the mortality has been most suspiciously regular for two or three years in succession, a hundred consecutive entries were taken at random and tested, and it was found that in every case there had been a real casualty corresponding to the entry, the result would furnish good ground for inferring that no such falsification was taking place. Even if at present this is not practised, it must be evident that such measures as those adopted by Captain Ramsay and described above, must induce a tendency in that direction. First one chowkedar and then another, whose clients refuse to die in the proper proportion, will take to supplementing the defects of nature by the resources of imagination, and if they succeed without being detected, the practice will soon spread. On this point, the remarks of the Sanitary Commissioner with the Government of India are well worthy of attentive consideration :—

"As regards both birth and death registration, it may be said, in conclusion, that no pressure ought on any account to be put either on the police or other authorities connected with the registration. If anything of this kind be attempted, it must lead to most disastrous consequences. Petty fines in municipalities, if levied judiciously, will no doubt have a good effect; and any gentle pressure of this kind put on the people will tend to better registration. But this is a very different thing from putting pressure on the police, from urging them to return deaths or births according to the Sanitary Commissioner's ideas of what they ought to be, or of placing different districts and other places in order of merit according to their recorded mortality. If the police or other local authorities have an idea that they will be judged in this way, there will be no want of deaths; and registration, instead of making progress, will go from bad to worse."

31. In cantonments the mortality among natives was 30.85 per mille in 1878 against 24.25 in 1877, but Fort William shows only 1.12 per mille, and is therefore described by the Sanitary Commissioner as the healthiest. The Lieutenant-Governor observes that in 1877 the mortality in Fort William was nil, and in 1876 1.69 per mille. These rates in successive years would indicate such marvellous salubrity of the Fort, as regards the 900 to 1,000 natives living in it, that it is impossible to avoid the inference that either the mortality is not recorded, or that all natives living in the Fort, and falling ill there, usually remove outside its limits before death has time to intervene.

32. The number of sailors visiting Calcutta during the year is estimated at 18,965 of all nationalities as against 29,819, exclusive of foreigners, reported in 1877. Of these 3,292, or about 175 per mille, were admitted to hospital, but only 80, or 4.21

per mille, died. The mortality was not so high as the Lieutenant-Governor would have anticipated, but as many of the sailors who visit the port only remain a few days, and most of them only a few weeks, it is of course very much higher than it looks. As regards the locality from which the sickness occurred, the Sanitary Commissioner states that the Hastings Ghat moorings were the unhealthiest, and next to that the Esplanade and Jetty moorings; but he bases this opinion on the absolute number of seamen admitted to hospital from the ships. Surely, this datum alone, without any reference to the number of ships anchored off each place, and the number of sailors in them, is insufficient.

33. The Lieutenant-Governor is very glad to observe that nearly all the vessels leaving the port, except some Arabs, took away a supply of water from the hydrants, and that the arrangements for supplying it to the shipping are reported to be satisfactory. The total amount paid for water during the year was Rs. 4,335.

34. Section VI of the report is devoted to the general history during the year of the chief diseases, foremost among which is cholera. Although it is a somewhat hazardous inference to make, there appear to be grounds for supposing that as a fact mortality from exceptional diseases, such as cholera or small-pox, is reported with far greater accuracy than mortality from old age or more ordinary causes. Thus, in Noakholly, where a cholera epidemic was raging in 1877, the mortality rose to 36·21, but with the cessation of the epidemic the ratio has fallen in 1877 to 10·46 only. As this can only be about one-third of the real mortality we are led to the inference, either that the cholera mortality in 1877 attained to the fearful proportion of above 70 per mille of the population, instead of 23·96 as reported, or that, however inaccurate registration may be in regard to ordinary diseases, it is more accurate as regards the more special diseases. If this hypothesis is correct it may be assumed that the decline in deaths from cholera in 1877 (155,305 as against 196,390 in 1876) continued in 1878, when only 95,152 deaths are recorded.

35. The amount of cholera which occurred at the large fairs, detailed in paragraph 51 of the report, was on the whole very small, and if it can be accepted that all that occurred was reported, the results were very satisfactory. The Sanitary Commissioner's opinion is that 'to no other disease in Bengal have preventive measures been so directly beneficial than to this most rapidly fatal of all.' Dr. Coates adds: 'My conviction has become stronger and stronger that there is a connection between impure water and cholera, and the one, in Bengal at least, is the chief (I would not make it absolute or conclusive) exciting cause of the other.'

36. Noakholly and Chittagong, which suffered so cruelly from cholera in 1876-77 after the cyclone, were almost entirely exempt from the disease in 1878. Not so Pooree, however, which both as a town and as a district was visited with equal severity in either year. It has been already remarked that this seems almost conclusive as to the effects of the pilgrimage. The Civil Surgeon of Cuttack evidently shares in this opinion, but the Magistrate appears to question it mainly on the ground that the maxima and minima periods of cholera do not invariably correspond with the greatest and least pressure of pilgrims. He also seems to assume that the pilgrims can only carry cholera with them, and cannot contract it on the journey, as he argues that they could only introduce it on their return journey from Pooree. But places on the line of pilgrimage have to apprehend the cholera which pilgrims contract on the road owing to their debilitated condition from fatigue and irregular habits, quite as much as the poison which they convey from other places. Granted that the germs are external to them in the water they drink, or the air they breathe, pilgrims are much more liable to their influence than ordinary well-nurtured residents.

37. The year was on the whole a bad one for small-pox, the recorded mortality from which was 12,410 against 8,088.

Small-pox.

The Sanitary Commissioner seems to consider that the practise of inoculation, openly where it is not prohibited, and furtively where it is, is mainly responsible for the outbreaks of small-pox and quotes with approval the remarks of Dr. Moorhead, Civil Surgeon of Cuttack, in favour of making vaccination compulsory. He also mentions with special approval

the exertions of Mr. Armstrong, the Magistrate of Pooree, to induce the people to accept vaccination.

38. Fever was generally very prevalent, probably much more so than during the preceding year, though it is chiefly in towns that the registration indicates its increase. In the rural tracts it is shewn as the cause for a mortality of 12·19 per mille, against 11·69 in 1877, whereas in towns it accounts for 18·02 against 15·87. In this as in preceding years December was the month of maximum and July of minimum mortality. The experience of many years past shows that invariably fever is at its worst in December or November, and at its best in June or July.

39. It is not necessary to repeat the remarks made last year as to the connection between fever and drainage. The subject is now, it is hoped, attracting the attention of most local officers, and all well-considered proposals meet with the best consideration of Government. The drainage works in Rungpore have most materially affected the public health there. The excessive mortality from fever in Serampore has been already referred to, and it is gratifying to observe that the health of Dinagapore has materially improved. How far this is due to the improvements effected on the suggestions of the Committee of Enquiry is a matter of doubt, as measures following on their suggestions would scarcely have had time to produce any effect within the year 1878. The Civil Surgeon ascribes it to the greater inundation of the Purnabhaha, but it must in fairness be remarked that in other places similar causes are often referred to as accounting for an increase of fever.

*Section VII.*—40. The vaccination report which is due from the Surgeon-General for Bengal has not yet been received. It will be separately dealt with in the Medical Department.

*Section VIII.*, Military sanitary works, is blank for Bengal.

*Section IX.*—41. The number of municipalities and unions shown by the Sanitary Commissioner is 176, with a population of 2,985,110 and income of Rs. 22,03,272, or about 12 annas per head. Of this, 26 per cent. is shewn as having been expended on sanitary works, 24 per cent. on police, and 42 per cent. on other objects. The difference, 8 per cent., represents the surplus of income over expenditure.

42. Most of this expenditure is incurred on works of a recurring character connected with latrines, drains, wells, tanks; as regards new works, Dr. Coates writes—

“One great drawback to progress, however, is that schemes proposed by municipalities for correcting defects, although attempted to be carried out at once, have to be abandoned, owing to the large outlay required for the purpose not being available. Instead of doing nothing, it would be better if such schemes were judiciously divided into parts, to be taken up and carried out one after another according to their respective urgency, and as funds become available. I am always careful not to suggest measures too great for execution or too expensive to be paid for.”

43. Paragraphs 142 to 191 detail the measures that are being taken in each municipality to improve its sanitation. The Lieutenant-Governor is glad to observe that the subject attracts so much attention on the part of the district and municipal officers.

44. Dr. Lethbridge carried on the duties of the Sanitary Commissioner for the first 11 days of the year, Dr. Harvey held the office from the 12th January to the 13th August, Dr. Joubert from that date till the 19th November, and Dr. Coates, who submits this report, resumed charge of his appointment on that date. 23 towns and municipalities were visited during the year, seven of them during the last month of it by Dr. Coates. The duties of the Sanitary Commissioner must suffer from such frequent changes, and the Lieutenant-Governor has taken measures to obviate this in future.

General Remarks.

45. The remarks of Dr. Coates in paragraphs 207 to 213, on the subject of drains and public and private latrines, &c., are well worthy of the careful attention of all municipalities, and form an interesting termination to a well-written and instructive report.

46. Dr. Coates closes his report with two suggestions—

- (1.)—To be allowed to print the statistics of each town and district, and circulate them quarterly to show each Magistrate and Police officer where others are succeeding better than himself;
- (2.)—To utilize Civil Surgeons more generally as Vice-Chairmen of Municipalities.

47. As regards (1) the same subject is adverted to in paragraph 13 of the remarks by the Sanitary Commissioner with the Government of India, who writes:—

“Another stimulus to correct registration is the publication in the Local Gazette of abstracts of the death and birth returns. Most of the provinces carry this out to a greater or less extent. In this Presidency, the North-Western Provinces, Punjab, Central Provinces and Berar, all publish such monthly statements and in addition both the Punjab and Central Provinces publish weekly statements for municipalities. Bengal has hitherto published nothing.”

48. As regards municipalities which have adequate means to register correctly, the measure ought to be productive of good, and should certainly be adopted. As regards rural circles it must be remembered that it is only by reaching the chowkedars that improvements can be hoped for, and it can scarcely be hoped that the publication of statistics, however widespread, will influence them. It may influence no doubt the Magistrates and District Superintendents, and through them the Police Sub-Inspectors; but the warning of Dr. Cunningham already quoted in this resolution, ought not to be lost sight of, and it is much to be feared that if police officers find their merits gauged by the percentages, there will be an improvement in the percentages that will outstrip the most sanguine expectations. The Lieutenant-Governor desires therefore that if the rural statistics are published they may be shown separately from the municipalities, and that too much stress may not be laid on the success of officers who show the highest percentages.

49. As regards the appointment of Civil Surgeons to be Vice-Chairmen of Municipalities, the Lieutenant-Governor is very doubtful whether it would produce the result expected, viz., the greater influencing of native Commissioners in the direction of sanitary reform. The Civil Surgeon is already *ex-officio* a Commissioner of every municipality in his district, and this surely gives him an opportunity of pressing his views upon the notice of the Commissioners in all sanitary matters. The office of Vice-Chairman, however, is the fullest extent an executive office, requiring attention to roads, culverts, the removal of obstructions, accounts and other details of municipal administration for which the Civil Surgeons as such would not necessarily have any aptitude though there would of course be exceptions. There is nothing, however, in the law which prevents the Civil Surgeon filling the post, and if such appointments are recommended with the consent of the officers themselves, the Lieutenant-Governor will not object to give the proposal a trial.

By order of the Lieutenant-Governor of Bengal,

H. L. HARRISON,

*Offg. Secretary to the Govt. of Bengal.*

No. 39.

Copy of this resolution and of the Sanitary Commissioner's report forwarded to the Government of India, in the Home Department, for information.

Circular No. 1.

Copy of the resolution forwarded to all Commissioners for information and guidance and for communication to District Officers.

No. 40.

Copy to Surgeon-General, Bengal, for information and for communication to all Civil Surgeons and Medical Officers in charge of civil stations.

( 712 )

No. 41.

Copy to Sanitary Commissioner for Bengal for information and guidance.

No. 42.

Copy to the Judicial Department of this office for information.

No. 43.

Copy to the Political (Medical) Department of this office for information.

No. 44.

Copy to the Public Works Department of this Government for information.

By order of the Lieutenant-Governor of Bengal,

RAJENDRA NATH MITRA,

*Assistant Secretary to the Government of Bengal.*

CALCUTTA,

*The 13th June 1879.*











